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ORIGINAL ARTICLES.

MEMOIRS.

SMALLPOX: WITH SPECIAL REFERENCE TO THE CASES AT ANN ARBOR AND BRONSON.

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE most interesting and profitable subject for discussion among physicians at the present time, from the standpoint of public health, is *smallpox* and *vaccination.* The recent return of several thousand students to the University from many States in which smallpox is epidemic, made it very likely that the disease would break out in Ann Arbor early in the new year. The expected happened. On Saturday, January 18, I was called to see MISS EFFIE P., and immediately reported the case to the health board as one of smallpox. On Monday, January 20, a second case of smallpox was reported. At the request of the health officer I examined this case, and found that fortunately a mistake in diagnosis had been made. It was a case of measels. Such an error, at such a time, was not to be wondered at, and was certainly in the right direction; and had it been made in the case to which I will presently refer, the epidemic at Bronson would never have existed.

These two cases, with their histories, special signs and symptoms, their bearing on differential diagnosis and the importance of vaccination and quarantine, open up a fertile field for discussion. In this connection it is unnecessary to refer to the remarkable prevalence of smallpox throughout Michigan and many other states, or to emphasize the fact that this is due to errors in diagnosis (such as calling it chickenpox, Cuban itch, and the like), and to the criminal failure on the part of physicians and health boards to quarantine suspicious cases. Another important factor, partially within the control of the medical profession, is the failure of the public to be thoroughly vaccinated. This latter fact is due to carelessness, or to the presence of an antivaccination sentiment more or less widespread.

The case of smallpox above referred to emphasizes in a very striking way all of these points. The patient acquired the disease (1) because she had never been vaccinated, (2) because the physicians in her town neglected to quarantine the person from whom she contracted the disease, declaring it to be chickenpox. What seems almost inexplicable was the failure of the physicians to urge the vaccination of all those who were exposed to this suspicious case. The results of these mistakes are now shown in the prevailing epidemic in Bronson, Michigan, and the case in Ann Arbor.

The following is a history of the case: MISS P., a junior literary student, went to Bronson, near Coldwater, to spend the Christmas holidays. On the night of January 1 a wedding was celebrated at her home. An aunt, who had recently arrived from the west, attended the wedding, contrary to the advice of one of her physicians. At this very time she felt ill and had a rash on her face. This aunt and MISS P. met in a dark hall, embraced and probably kissed. When they stepped into the light the rash was discovered. A senior medical student told the family that he strongly suspected the aunt had smallpox, and urged them to be vaccinated. They refused to comply with his suggestion for two reasons (1) because the physicians of the town had declared the disease to be chickenpox, (2) because they were strongly prejudiced against vaccination on account of the unfortunate results which attended the vaccination of some of their relatives the year before.

The subsequent history of the aunt's case and the prevailing epidemic in Bronson, makes it certain that on the night of the wedding she was in the papular—almost vesicular stage of smallpox. She soon developed a secondary fever and required the attention of a physician for about ten days. Notwithstanding these facts the diagnosis of chickenpox was still maintained, as the following clipping from a Bronson paper will show:

"MRS. M., late of California, is sick at the home of her sister. The disease was at first reported to be smallpox, but the doctors have pronounced it chickenpox."

To again take up the history of the present case. On January 13, twelve days after exposure [the sister's incubation period was ten days, the brother's sixteen days], MISS P., while attending classes at the University was taken with very severe chills, headache, aching of the legs, and intense pain in the sacral region. A high fever developed, and she continued feeling sick till January 16, when a peculiar red rash broke out on her face, first noticed at the hair line of the forehead. She states that this rash felt like small hard balls, under the skin. All of her symptoms now abated and she felt unusually well. This feeling of well-being continued, but the rash did not disappear. I saw the patient for the first time on January 18. She was apparently in good health, had no fever and was walking about her room. There was, however, quite an extensive red papular eruption on the face, chest and back. It was less marked on the abdomen and limbs. A number of lesions were also present in the throat, involving especially the tonsils. There was no eruption on the buccal mucous membrane, where one looks for KOPLICK'S spots. The next morning, January 19, the oldest papules had changed into turbid vesicles. These rapidly became pustular. By January 20 the entire body was covered with discrete pustules, and new ones were continually developing. Secondary fever with its accompanying symptoms developed January 19, and continued for nearly three days, the highest temperature reaching 100.8°.

A large number of people were exposed to this case, as she was taken sick in the classroom, and later her friends were allowed free access to her apartments. Only the night before I saw her, a high school club met at her rooms. The names of all persons who came in contact with her were secured, and these people were immediately vaccinated.

In Bronson the exposure was more extensive and somewhat more intimate, as the aunt above referred to kissed at least the bride and my patient. The number of unvaccinated persons was also much larger. Furthermore, even after the exposure was known, no one was vaccinated. These two exposures, one in a partially vaccinated community, Bronson, the other in a section which has been thoroughly vaccinated, Ann Arbor, afford us an excellent opportunity to judge of the value of vaccination. In Ann Arbor not another case of smallpox developed, notwithstanding the fact that many people were thoroughly exposed.

In Bronson—at last reports—twenty-five cases have developed as a result of this single exposure. Among the number are the bride and groom. So far as I can learn none of these persons were ever vaccinated. The possibilities of spread of the contagion are enormous. Guests were present from towns in Ohio, Indiana and Michigan. It is already known that the disease was carried to several Michigan towns and one Indiana town, where there has been fresh exposure. So the circle of smallpox contagion is constantly widening.

On Monday, January 20, two days after the report of the above case, a second case of smallpox was reported to the board of health. A large number of students were exposed and much alarm was felt. At the request of the health officer I examined this patient and found that he had measles. The patient was wisely quarantined in his room until the diagnosis was certain.

Because of the recognized difficulty in differentiating between measles and smallpox early in the stage of eruption, it may prove of interest and value to read the points of difference in these two cases.

The patient with measles gave no history of exposure; his premonitory symptoms were by no means so severe as in the case of smallpox, though lasting for about the same length of time, three to four days. His temperature remained high, 102°, sixteen hours after the appearance of the eruption, while in the other case the temperature fell with the appearance of the rash. His eruption began to fade within twenty-four hours of its appearance, and the temperature to fall and his symptoms to abate, gradually, with the fading of the rash. His eruption did not have a shotty feel; hers did. He showed distinct KOPLICK'S spots on the buccal mucous membrane. She did not. The so-called crescentic arrangement of the rash was very apparent in his case. The atypical point about this case of measles was the absence of catarrhal symptoms, with the exception of an herpetic sore throat which was present.

The practical lessons to be drawn from these cases are (1) Quarantine every suspected case of eruptive fever until the diagnoses is certain. (2) The authorities should use all means in their power to secure a thorough vaccination of the community. (3) Vaccination should be performed by careful, competent physicians, with vaccine which is above reproach, in order to avoid the development of an excusable antivaccination sentiment, which is the natural result of the too frequent infection with pus organisms and tetanus germs.

THE MANAGEMENT OF CROSSED EYES IN CHILDREN.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE unquestioned prevalency and withal common neglect of cases of crossed-eyed children; the urgent necessity of immediate attention in extreme infancy and the futility of treatment when the condition becomes permanent with years—are the considerations which have led me to review the subject in the light of modern scientific methods. Squint is a condition which because of its very prevalency is usually and wrongly classed with the imperfections which are permitted to right themselves. The child is allowed " to outgrow it," and when the futility of this course is brought to the conviction of the parents, the squint is too well established to be corrected by other than a surgical operation. It may be corrected with timely interception and patience and advised treatment. It is serious from neglect.

Squint is a condition much more complicated than is commonly supposed and one deserving of greater care and study than it generally receives. The advice to wait until the child is seven or eight years old, when, if he has not outgrown his strabismus, an operation may be performed and the deformity corrected, is not only irrational and unscientific, but may be positively harmful.

To enter into a careful study of the etiology of internal squint is not necessary or opportune in a paper of this kind. We will then, avoiding theories and technical terms, approach our subject with the idea of the best possible advice we can give for the management of these unfortunate children.

Squint being a permanent deviation of one of the eyes with reference to the other is a relative term. To have a squint we must have two eyes. Anything that will interfere with the use of both eyes may be instrumental in the production of strabismus. To see accurately with the two eyes, the coordination of the movement of the eyes must be perfect. The accurate coordination is usually impossible, except under the guidance of binocular vision. The two usually develop together during the first weeks or months after birth, but may not be perfect until after several years. Impaired vision of either eye, no matter what its cause, may lead to a squint in a child; whereas, in the adult, after binocular movements are well established, no such result would follow. Habit may be the cause. As JACKSON says:

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*Read before the WAYNE COUNTY MEDICAL SOCIETY, October 16, 1901.

"A squint started at will may become involuntary and finally unconscious." The vision in the squinting eye is often poorer than in its fellow. Whether the turning in of the eye produced the poor vision from disuse, or the impaired vision led to the squint is difficult to say. It would be almost too bad to have it settled as it is now one of the most fruitful topics for discussion in ophthalmology. One thing is certain, most children with internal strabismus are farsighted.

Prolonged gazing at near objects may exaggerate or develop a squint, especially if the child is farsighted. While this form of strabismus usually develops at a time when the child begins to fix his attention upon objects held in the hand, it may not develop until several years later. It is in this latter class of cases that kindergarten work is harmful.

When first noticed, the squint may be periodic or occasional, being noticed only when the child looks at near objects. The same eye may always deviate, or it may be noticed that sometimes the right eye, sometimes the left squints. In the latter form the strabismus is said to be alternating.

To test for a squint, cover one eye and have the patient look at an object held about a foot in front of the face. While the patient is gazing at the object change the cover from one eye to the other and observe the movement of the eye which is uncovered. If the muscles are normal there will be no movement, but if there is a squint, when first uncovered, the eye will not be gazing at the object, and the movement of the eye to fix on the object can be plainly seen.

The result aimed at in the care of these cases should be not only to straighten the eyes, but to retain or restore perfect vision. The treatment should be begun as soon as the squint develops, no matter what the age of the patient may be. During the period of incomplete development any muscular abnormality is most easily prevented or overcome. If treatment is deferred the muscles may undergo permanent change and the vision become impaired.

The treatment for squint must vary with the age of the patient. If the child is too young for glasses, take away all toys and forms of amusement that call into use the accommodation. Let wagons, hobbyhorses, balloons and large toys be substituted for picture-books, paper dolls and games that require close observation. He should be kept out of doors and his general health guarded. Do not send the child to the kindergarten. If these methods do not prevent the squint from developing, a weak solution of atropin (one grain to the ounce) should be instilled into the eyes once or twice daily to partially suspend the power of accommodation. In this way the patient may be cared for until old enough to wear glasses. Glasses can be worn at varying ages by different children, usually about three. The methods now at our disposal, especially the shadow test, make the fitting of glasses to children perfectly accurate and reliable. This method can be employed only after the use of a mydriatic when the accommodation is completely suspended. A full correction of the refractive error should be given to be worn constantly. The eyes should be retested once a year. In many cases it will be found necessary to decrease the strength of the glass if given to correct farsightedness as the natural enlargement of the eyeball tends to increase this condition.

The use of glasses will frequently cure the squint. It is not unusual to see an eye which, while remainly perfectly straight so long as the glasses are worn, become strabismic as soon as the glasses are removed. Should the glasses fail, cover the good eye for one hour, twice daily, thus enforcing the use of the squinting eye. By following this course the vision may be improved and the loss of coordination corrected. The serious objection to this method of treatment is that it requires much time and patience on the part of both patient and parents.

Another optical device for the treatment of these cases is the stereoscope. This instrument, which is found in nearly every household, can be used and often good results obtained by training the eyes to work together. By marking corresponding points on the two pictures, and asking one's patient to interpret them, one can tell which one or if both eyes are being used. The picture being so much more perfect when both eyes are used, every effort will be made by the patient to establish binocular vision. By a variation of the pictures the child is not only being treated, but entertained. If the amount of farsightedness has been determined it is better to use the glasses or add the correction to the stereoscope, thereby relieving the muscle of accommodation.

The fact that cures do occur both spontaneously and by the treatment as outlined above, tends to make one hesitate before interfering surgically. The vast majority of cases, however, will not be cured by means other than surgical. The question is, when should we operate? The age at which to operate is at that time when after full and careful study we can say the squint is permanent and constant with and without glasses. This is usually about the sixth or seventh year. If these conditions are not fulfilled, and each test shows a different error, indicating that the abnormal condition is not fixed, it is advisable to wait until the eyes and muscles are more fully developed. The optical treatment should be continued with the hope of thereby establishing binocular vision and perfect coordination.

I feel that a word of warning should be raised against putting puny and ill nourished children in kindergartens. The prolonged concentration on near objects at the period of most rapid development is unnatural and may permanently injure not only the eyes but the general health. Such children would be infinitely better off running in the fields or parks, although the care of the parents might be more arduous.

No other class of cases, perhaps, requires more care and patience, and none in one way are more often neglected than those of internal squint. A premature operation may lead to a turning out of the eye, a condition much more to be dreaded by patients and friends than the original deformity; while neglect to interfere early may lead to impaired vision. Nothing but care and conscientious study of the individual case can determine the best course to pursue.

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BACILLI WHICH RESEMBLE THE BACILLUS TUBERCULOSIS.*

By DAVID MURRAY COWIE, M. D., Ann Arbor, Michigan.
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[Published in The Physician and Surgeon exclusively]

It was not long after the discovery of the tubercle bacillus by Koch that Ehrlich showed that this organism and the bacillus of leprosy were peculiar in that they refused to give up their stain after having been exposed to the action of strong acid solutions for varying lengths of time. This acid-resisting property at that time served to differentiate these bacilli from all other known organisms. Since this time, however, a number of other acid-resisting organisms have been found, indeed, it was only two years after Koch's discovery that Zahn reported the finding of acid-resisting, tubercle-like bacilli, in sputum which afterward proved not to be tuberculous. In 1885 Alvarez and Tavel, Matterstock and Bitter discovered in the smegma of man, around the anus, and on various parts of the body, organisms that resembled very closely the bacillus tuberculosis. Of late years acid-resisting bacilli have been found in animal products, such as milk and butter, by Petri, Rabinowitsch, Hor-

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* Read before the Washtenaw County (Ann Arbor) Medical Society. Experiments conducted at the Clinical Laboratory.

MANN, **MORGANROTH**, and **GRASSBERGER**, in manure by **CAPALDI**, **SEVEREN**, **FERAN** and **MOELLER**, in timothy grass by **MOELLER** and **KRETZ**, in the smegma and on the bodies of many of the lower animals by myself.*

From the foregoing it will be seen that there is abundant proof that acid-resisting tubercle-like bacilli are frequently found in the secretions from the genito-urinary, respiratory, and intestinal tracts, and on the outer coverings of man, as well as in the lower animals.

(Last August I succeeded in growing from material obtained from the prepuce of a white rat a bacillus that was very resistant to acid-solutions. This organism was difficult to stain. It required five minutes exposure to hot carbolic fuchsin, and no stain at all could be obtained after twenty-four hours exposure to carbolic fuchsin at room temperature. It resisted decolorization with fifteen per cent nitric acid for two minutes. The organism was found in the heart blood after intraperitoneal inoculation of a guinea pig, and still retained its acid-resisting property. Two varieties of acid-resisting bacilli were found in one tube; one resembled in form the tubercle bacillus, the other the diphtheria bacillus.)

The leprosy bacillus does not concern us much in this country. There are many instances, however, where a knowledge of this organism would have prevented a faulty diagnosis. There are upwards of two hundred and fifty cases of leprosy in this country.

The leprosy bacillus resembles the tubercle bacillus very closely. It is usually much shorter and is not subject to the polymorphism exhibited by the tubercle bacillus. It is readily stained with aqueous solutions of fuchsin at room temperature, and thus differs from the tubercle bacillus. Its resistance to acids is not so great as that of the tubercle bacillus.

The bacillus is demonstrated clinically in the serum or blood obtained by pricking a tubercle, in the pus around broken down tubercles, and in the nasal secretions. These methods may not always succeed. As a greater or less degree of anesthesia exists in the majority of leprosy tubercles, there is no reason why the excision method should not be employed. I have removed nodules of considerable size from the hands of lepers with the scalpel and no evidence of pain was manifested. A more ingenious and satisfactory method of obtaining the tissue, which I

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*For literature see: COWIE, D. M., "A preliminary report on acid-resisting bacilli, with special reference to their occurrence in the lower animals." *Journal of Experimental Medicine*, Volume V, Number II, October 25, 1900.

saw employed by Doctor A. C. Smith, of the Tracadie Lazaretto (New Brunswick), consists in the use of a cutaneous punch made of steel and after the pattern of a small cork borer. With this instrument a circular bit including the entire skin can be obtained. Sections of these bits show enormous masses of bacilli while comparatively few bacilli are demonstrated by the other methods. In anesthetic leprosy bacilli are difficult to demonstrate. The history and symptoms are more to be depended upon for the diagnosis of this form.

The smegma bacillus cannot be distinguished from the tubercle bacillus by its morphology. Indeed it will deceive even the very elect. I refer to the smegma bacillus proper for there are acid-resisting bacilli in smegma of more than one form. Two forms are prominent and distinct; one resembling the bacillus of tuberculosis, the other the bacillus of diphtheria.

In verification of the work of others I have made many examinations of secretions and materials found on the human body. In eighty-five per cent of males taken at random greater or less quantities of smegma showing acid-resisting bacilli were present. Eighty-three per cent of females examined showed acid-resisting bacilli either on the vulva or in the vagina. I have also demonstrated these organisms around the anus, in and around the female meatus urinarius, and on the vernix caseosa of a newborn babe.

It is not difficult to see how easily such organisms can get into the urine and lead to a faulty diagnosis of genito-urinary tuberculosis. This is particularly so in the female. I have frequently found acid-resisting bacilli in urine that afterward proved not to be tubercle bacilli. In these cases examination showed smegma in considerable amount. After all that has been said and written about these organisms it is surprising how frequently this error is made. Every physician should acquaint himself with this organism.

The next question is how to differentiate so-called pseudotubercle bacilli from the tubercle bacillus. Many are satisfied to dismiss this point by saying that the smegma bacillus is easily decolorized in alcohol. Some recommend sixty to eighty per cent, others absolute alcohol. There are instances wherein absolute alcohol does not completely decolorize. I have seen smegma bacilli resist absolute alcohol for thirty minutes and ninety-five per cent for two hours.

At the present time we are obliged to say that there is no differential stain that will stand a rigid test. There is no method that can give absolutely positive proof of the identity of these organisms outside of the animal experiment. Inoculate a guinea pig intraperitoneally with the washed urine sediment. In from three to four weeks the pig will be quite sick, its rectal temperature high, its hair rough and standing, its weight decreased, and, postmortem, its organs studded with miliary tubercles, which on section show the bacilli and the characteristic anatomical changes. If the pig dies within twenty-four hours or in a few days from the time of inoculation death is as a rule due not to the tubercle bacillus but to some other organism.

Outside the animal experiment, the method that is of most value is the catheterization method. The genitals are first washed with soapsuds, then rinsed with water, then washed with bichlorid solution, one to four thousand, which in turn is washed off with sterile water. A sterile catheter is now passed and the urine is collected in a sterile receptacle. The sediment is examined for acid-resisting bacilli, by staining with hot carbolic fuchsin, washing, immersing in fifteen to twenty-five per cent nitric acid solution, then immediately transferred without washing to absolute alcohol, where the specimen remains a short time, until excess of redness is gone. The alcohol is washed off and the specimen counterstained in methylene blue, mounted in water and examined. Any acid-resisting bacilli present are probably tubercle bacilli.

The tuberculin test is of value. A positive reaction with five to ten milligrams of tuberculin, together with other genito-urinary symptoms makes the diagnosis of tuberculosis in this region quite positive. Considerable work must yet be done with this test before we can get any definite information of its true value.

THE DIAGNOSIS AND TREATMENT OF INCIPIENT TUBERCULOSIS.*

BY JOHNSON W. HAGADORN, M. D., LANSING, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

SOME writer has said that we should not overtalk a subject. I assure you that I will not do so in this instance. In the discussion of the subject of tuberculosis it does not seem necessary to go into the history of the malady, nor to discuss the symptoms fully, and consequently only those pertaining to the early stages will be considered. The laity can easily diagnose the disease in its advanced stage.

Tuberculosis may involve any part of the body, but is usually confined to the lungs and the larynx. The skin, the joints, and in fact all glands of the body may be infected with the tubercle bacillus. No diagnosis of lupus, hip-joint disease, or necrosis of bone, is complete without the thorough use of the microscope. As to contagion, I am of the opinion that it should not be classed with scarlet fever, smallpox, and that class of contagious diseases. I regard it as highly infectious. It may reasonably be classed with diphtheria, typhoid fever, and that class of infectious diseases. That it is a disease dangerous to the pubic health will be demonstrated by the following statistics: During the year ending June 1, 1900, the combined deaths in ten of the principal cities in the United States from smallpox, typhoid fever, scarlet fever, measles, diphtheria, and whooping-cough, were 12,271; from tuberculosis 18,763. It will be observed from these figures that (notwithstanding the contrary opinion of the Board of Supervisors of Ingham county) it is a disease dangerous to the public health.

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*Read before the CENTRAL MICHIGAN (Lansing) MEDICAL SOCIETY, at its January meeting.

The efforts made to prevent the spreading of tuberculosis are only in their infancy. The time is not far distant when the people will be educated to the ideas of proper marriage, breeding, and ventilation. The avoidance of foul air, overcrowding, lack of sunshine, and dampness—all of these unsanitary conditions are potent factors in the propagation of the disease. Direct contagion from kissing is possible, and this unhygienic practice should be discouraged. The use of eating utensils which have not been properly sterilized is a means of infection by the germ. In a majority of cases of primary tuberculosis the lungs are first involved. In most instances infection is undoubtedly due to the inhalation of the bacillus in dried sputum through the medium of dust. I am much gratified by the action of the Common Council of Lansing in framing an ordinance to prevent spitting on the sidewalks, and heartily wish there were a law that would prohibit ladies from wearing long skirts to mop up the sputum (whether dry or moist) to carry home for their children and other members of their families to inhale. The bacillus may be transmitted by a tubercular person coughing directly in the face of a healthy person. A bad nasal ventilation is a common predisposing cause, and any condition of the nasal passages that necessitates breathing through the mouth endangers the person.

I do not believe the bacillus is inherited, but the physical deformities that predispose to consumption are inherited. The strumous condition during childhood, the narrow chest and lack of expansion of the upper lobes of the lungs, the poorly nourished, the anemic, and the inherited syphilitic, are all predisposed to the white plague. Heredity, in the majority of instances, means nothing more than the transmission from parent to offspring of tissue peculiarities in accordance with that universal tendency in nature, both in the vegetable and animal kingdoms, for each individual to exactly reproduce itself. The feeble resistance to influences that tend to destroy the vitality, coupled with inherited syphilis, predispose the child to the tuberculous poison. The power of resistance is lessened by this condition. While this is true of the individual, it is also true of all of the organs and cells of the body. It is this susceptibility to cell invasion by the bacillus and *not* the disease itself which has been inherited. The depressing influence of bad food, poor ventilation, and improper clothing, with the wide distribution and prevalence of the germ, give, at some time, all susceptible individuals an opportunity to become infected.

I remarked at the commencement of this discussion that I would only deal with the primary or incipient stage of tuberculosis. I want to plead guilty myself before proceeding to the criticism I shall make in regard to diagnosis in the early stages of tubercular affection. I believe many cases of tuberculosis have gone on to a fatal termination from an oversight (must I say from the negligence?) of the attending physician. I believe the majority of cases are tractable and *can be cured* during the incipient or early stage; and, further, that any physician who does not take pains to learn every detail when diagnosing such cases is guilty of neglect or ignorance. I deem it of great importance to be accurate regarding exposure, environment, occupation, symptoms, et cetera. In examining a patient, thorough inspection of physique should first be made, and any deformity or lack of physical development, particularly about the chest noted. The patient's skin should be seen at least to the waist line. The impression we gain from a thorough inspection is of great importance. The pulse, the rapid respiration, the slight dry, unobstructive cough of a hacking or throat-clearing variety, all have their bearing on a final diagnosis.

I regard the use of the thermometer in diagnosis of the early stage, of great value. I would take the temperature of the patient at least every three hours for several days if possible. In early tuberculosis there is usually a temperature not above normal between 7 P. M. and 10 or 11 A. M., but as a rule there is a rise between 2 and 5 P. M. of from one to two degrees. I regard a normal temperature, or practically one, after 5 or 6 P. M., of great diagnostic import. In the early morning hours the temperature is often subnormal.

The pulse frequency and arterial tension may be noted in the beginning of the disease. There is usually almost constant acceleration of ten to twenty beats per minute with diminished pulse tension, which is not influenced by the patient being in a reclining position. Gastric disturbance accompanied by impaired appetite, constipation or diarrhea, may be present.

Infiltration and hardening of the lungs may be determined to a great extent by a careful inspection of the upper portion of the chest. The signs that early show themselves are, as a rule, a slightly lessened movement in either the supraclavicular or infraclavicular region. The diminished expansion on one side can often be noticed by comparing the corresponding intercostal space on the other side. A slight diminution in percussion resonance is noticeable in the beginning of infiltration. One of the early signs, determined by auscultation, is breathing slightly diminished in intensity, particularly if this diminution is noticed during inspiration. This change of breathing oftentimes is noticed only in the supraclavicular or suprascapular region. The increased vocal resonance, if heard in the suprascapular region, is almost positive proof of infiltration. Another important sign of infiltration of the right lung is the transmission of heart sounds. If in addition to any of these signs, moist rales are present, the diagnosis is made more certain. The cog-wheel or jerky inspiration is a valuable early sign of pulmonary tuberculosis when it occurs just below the clavicle, especially when it is noticed on the left side.

I regard the following method as very important in determining the early presence of tubercular infiltration: The patient's hand is placed on the opposite shoulder. The physician will then listen over the portion uncovered by the scapula, namely, just above and external to where the bronchial tubes are given off. There will be heard prolonged tubular breathing, and fine rales on coughing. This is one of the early physical signs of tuberculosis, and evidence which will make diagnosis possible weeks before other signs are manifest. Fibroid or hardening of the lungs, as its name implies, is a condition in which there is a preponderance of the fibrous element. It generally commences as a pulmonary cirrhosis, upon which, later, the tubercular process is manifest. Frequently the tubercular condition is present at the beginning. I believe that the rheumatic diathesis, when the white fibrous tissue is involved, predisposes the patient to tuberculosis by producing conditions favorable to infection by the bacillus. I also believe that inherited syphilis is an important factor in producing the condition described above. Owing to the construction there is a marked diminution in the size of the lung involved, the thorax caves in to fill the space caused by the shrinkage of the diseased organ. This condition may last for years and the patient enjoy fairly good health. There is usually an increase in the rapidity of the respiration, and dyspnea on exertion.

In regard to treatment, I shall confine my remarks entirely to the dissussion of the incipient stage of the malady. The needs of the tuberculous patient are not one but many. I will not attempt to go over the ground in a general way, but will confine my remarks to those cases that come under the supervision of the attending physician; cases whose financial condition will not admit of their going to another climate or to a sanitarium. Rest from work; change of cares so as to shift the load from parts that have borne it to those that are fresh; attention to digestion and nutrition of the body; long hours of sleep; plenty of fresh air and sunshine, all are important factors in the treatment of tuberculosis. In treating this class of cases, it is supposed that the patients have strength and vitality to take a due amount of exercise. I would have them walk in the open air (not to the extent of fatigue) several times a day. My advice to them on rising is to take a cold, quick bath (particularly about the chest), rub dry quickly; then go out into the open air and inhale, filling the lungs as full of fresh air as possible, then exhale, expelling every particle of air from the lungs that is possible, and repeating this procedure in a careful way several times. This exercise should be practiced at least every two hours during the day. The patient should have a full warm bath twice a week, and a quick cold sponge bath every morning. The underclothing should be of light-weight wool in the summer, and heavier wool during the winter months. The appetite of the patient and the ability he possesses to digest, will govern the physician largely in recommending the kinds of food to be taken. Pastry, salt pork, veal, salt fish, and too much sweet should be excluded. There should be given plenty of beef rare or raw, eggs, and abundance of rich milk, providing the patient can digest it, if not, I generally advise a small glass of beer taken at lunch and dinner. Fresh air, sunshine, lung exercise, and good, nutritious food are important factors in the treatment of tuberculosis. The digestion, assimilation, and elimination should receive proper attention. The bowels and kidneys should perform their functions in as nearly a normal manner as possible.

The different lines of medicinal treatment all have their advocates. I am not in position (neither am I inclined) to critizise or ridicule any of them. Tuberculin, as far as it acts as a cell tonic, does good work. I do not believe there has been discovered as yet an antidote to the tubercle bacillus. I think, however, that the time will come when a remedy, a serum, will be found that will destroy the germ when injected direct into the circulation.

During the past three years I have treated twenty-five cases of tuberculosis. Fourteen of these were in the advanced stage. Eleven were in the incipient or primary stage. With the exception of two, those treated in the advanced stage were not materially benefited. The eleven treated in the primary stage, I believe, were entirely cured. With only two exceptions, the sputum was examined in all of these cases and found to contain tubercle bacilli. The line of procedure in all of these cases was as indicated above.

THE THERAPEUTIC STATUS OF ANIMAL EXTRACTS.*

BY WILLIAM R. CHITTICK, M. D., DETROIT, MICHIGAN.
CLINICAL PROFESSOR OF MEDICINE IN THE DETROIT COLLEGE OF MEDICINE.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

WE are constantly looking for new therapeutic remedies and will continue the search, I presume, until specific remedies are found for all diseases, and then, like ORTHELLO, the occupation of the practician of internal medicine will be gone.

The recent advance in therapeutics has been so very remarkable, and has extended so widely that it now includes not only the mineral and vegetable kingdoms but also the animal kingdom. The recent proving of the theory that insects convey disease germs, and the theory of DOCTOR GAYLORD, of Buffalo, that even cancer may be conveyed to the human being by insects and raw vegetables is indeed startling when we consider what it may mean in the end; and, thoughts along these lines must lighten the extent of our ridicule of the Chinese system of therapeutics. There will always be this difference between our systems, however, we apply scientific investigation in our researches while they depend wholly upon empiricism.

The introduction of animal extracts into the practice of medicine has been of comparatively recent date, but they are gaining wonderfully in reputation. The literature on this subject is very meagre, and I find that there are few who have any extended experience in the use of many of the animal extracts;

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* Read before the DETROIT MEDICAL SOCIETY.

consequently I may not be able to give you information on the subject that will be new to you.

PEPSIN.

Pepsin is an animal product that has been in use longer than most of us can remember. It is made from the gastric glands of the pig. Pepsin has gained a very great reputation for digesting albuminous food. It is made in hundreds of tons. The majority of the members of the medical profession have great faith in its powers, but after more than ten years experimentation, I have finally lost all faith in the preparation and never use it now. Ostrich pepsin is made from the gizzard of the ostrich and is used in Argentinia.

EXTRACT OF PANCREAS.

This is an extract made from the sweetbreads of animals, and used in many forms as a digestant. It will digest either in an acid or an alkaline solution. It is generally held that it will not act in an acid medium, or in the stomach, but this is not true. Most all kinds of food can be "peptonized" or predigested with extract of pancreas. This is exceedingly beneficial in the feeding of infants and invalids, especially during the summer months.

The longer the predigestion is allowed to go on the more bitter will the product be; therefore, it is very often advisable to feed the extract of pancreas with the food — even to babies.

SPLENIC EXTRACT.

Splenic extract is found not to be inert. It has caused irritation of the stomach when given by the mouth. H. C. WOOD has used it in three cases of exophthalmic goitre. One was cured and the other two were greatly improved. It has been used in anemia and chlorosis, and some good reports have been made by a few competent observers.

BRAIN AND NERVE EXTRACT.

A few reports are made of the value of brain and nerve extract in the treatment of nervous diseases, especially epilepsy. I have had personal experience in one case only. The result caused me to loose faith in the extract and the man who made it and sold it to me. I considered the whole thing a humbug. The experiment was made about twelve years ago.

ORCHITIC EXTRACT.

BROWN-SEQUARD was the first to introduce orchitic extract. He based his theories on the fact that the removal of the testicles produces great physical and mental changes in animals and in man. In his own person he found the testicular fluid increased his physical and mental vigor. This, however, did not last with him and his disappointment was keen. The majority of clinicians have held that suggestion played a great part in the so-called successful cases reported by a few observers. It is not many years ago since an extract of the testicles of young lambs was used by quacks for the cure of all nervous diseases. Of course it was a total failure. So was another extract of the same nature that was recently in use in this city.

OVARIAN EXTRACT.

Some favorable reports are made by a few observers regarding the beneficial effects of ovarian extract in disorders occurring during the menopause. Uterine hemorrhage has been reported cured by the continuous use of ovarian extract.

BONE MARROW.

Of late bone marrow has obtained quite a reputation in the treatment of anemia and other conditions dependent upon a depraved condition of the blood. The marrow is usually taken from the broken ribs of young animals—usually the calf. The broken ribs are placed in a jar and covered with glycerine, and allowed to stand for three or four days. Then the glycerine is strained and ready for use. From one to three ounces are given each day. There are no *very* enthusiastic reports of the great success of bone marrow.

PITUITARY EXTRACT.

Pituitary extract has been used for the relief of some of the painful conditions in acromegaly. Other extracts were used in combination with it, so that I have heard of no cases in which it was successfully used alone.

THYMUS GLAND.

The reported effects of the extract of thymus gland are only analagous to those of thyroid extract, and in a lesser degree.

SUPRARENAL EXTRACT.

The suprarenal extract is now superceded by the active principle, adrenalin hydrochlorid, separated by the Japanese-American chemist, TAKAMINE, of New York. A solution of one to one thousand is now on the market. It is cleaner and clearer than the solution of the extract. Its action is very prompt in blanching congested mucous membrane. Under certain conditions, however, the membrane will bleed if cut. It is very useful in the treatment of catarrhal conditions of the nose. It will not shrink polypi, so that they can be distinguished in the nares when they might not otherwise be detected.

THYROID GLAND EXTRACT.

Thyroid gland extract is the most important of all the animal extracts. Its action is positive. It has come to stay. The glands of the young sheep give the best results. The disease in which it has given best results is cretinism. If properly given and for a sufficient length of time it will produce almost perfect results. In myxedema thyroid extract also gives most remarkable results. Thyroidin is the active principle obtained by Baumann. It contains nine per cent of iodin. But it is altogether too expensive to be used in America.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, JANUARY 8, 1902.

The President, DELOS L. PARKER, M. D., in the Chair.
Reported by LOUIS J. GOUX, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor William R. Chittick read a paper entitled "The Therapeutic Status of Animal Extracts." (See page 16.)

Doctor Donald: The doctor brought out some points in his paper that appealed to my views clinically, one of which was in reference to Addison's disease. This is an exceedingly rare disease. I have seen only two cases in fifteen years' practice. It is believed to be a disease of the suprarenal capsules. It seems to me that any disease of the suprarenal capsules should produce Addison's disease. I am inclined to think it is a carcinomatous malady. The paper is a good one. I agree with the author that pepsin is practically a valueless drug. Bone marrow, it always has seemed to me, is of hopeful possibility. I have used thyroid extract in the ordinary simple cases of hyperplasia of the thyroid gland, and in this condition I think the drug is good. I have been particularly interested in the theory which has been advanced as to the manner in which it acts. The theory is that there is something wanting in the blood and that the thyroid gland overworks itself trying to supply that something, and, overworking itself, finally becomes hyperplastic. If the patient is fed thyroid extract, the gland has a rest, and the result is that nature simply absorbs this hyperplastic tissue, the gland returns to its normal position, and the patient is cured.

DOCTOR TIBBALS: To my mind it is unfortunate that in our study of comparatively new products like this we are so frequently aided by the manufacturing pharmacists to study each from a shotgun basis. These people are very apt to put products on the market which contain everything that might be useful, and, consequently, the remedy is recommended for almost everything. It is a good deal as a representative stated to me one time about peptenzyme. He said it contained every form of "zyme" from the mouth to the anus. The animal extracts are similarly lauded. Harvey claims that his lymph contains the extract of all the glands, practically. It is also advertised especially as a goat lymph, and, a phospho-albumen representative said that Harvey, when he started in the business, had but one goat and that said goat is still roving about. It is surprising to see the class of men who become interested in and believe in it. Within the last six months I have received a letter from a man of prominence in the interior of the state, calling my attention to an article which he had written on the use of Harvey's goat lymph, and expressing the hope that I might become interested in the product. He had used it for everything, from sore eyes to corns, and obtained beneficial effects in each instance. As regards phospho-albumen, I must say that I am very nearly as skeptical. There are, however, some of the isolated products which are quite valuable; thyroid extract, and, possibly, one or two others. I, myself, have thought that I obtained good results from the use of ovarian extract in a case of artificial menopause when both ovaries had been removed.

DOCTOR ANDERSON: I have had some experience with the suprarenal extract, and found it very efficacious indeed. Last summer the results were not nearly so satisfactory, but this summer they were very good. As a means to prevent hemorrhage during operations on the nose I invariably employ it, and rely upon it in most all of my intranasal work. In operating upon the tonsils I never use it, because I feel that if hemorrhage occurs it is better to have it while the patient is under observation than to have it later. If the extract is used in the nose it seems to me wise to pack the nostril with gauze after operation and in that way prevent secondary hemorrhage. Some operators have reported disagreeable secondary hemorrhage following intranasal surgery, but this is probably because they allowed patients to return home without packing their nostrils. In regard to thyroid extract, I have used it some, and must say that I have been disappointed in cases of goitre wherein it ought to have relieved but did not. In some cases it cured, but in a great many cases the patients were in no way relieved by it.

DOCTOR FLINTERMANN: One speaker made the remark that he thought Addison's disease was not in any way connected with other pathologic diseases in the glands. I saw a case some years ago with the Assistant Superintendent of the Pontiac Insane Asylum, where I sent a man with all the symptoms of Addison's disease. The man died and a postmortem showed that there was a severe tubercular infection of the suprarenal gland. I think that in a great many cases of Addison's disease, if proof is not present, the condition often escapes the observation of the physician and is only revealed by a post-mortem examination. As far as the administration of thyroid extract is concerned, I never now administer it in goitre. If this preparation benefits patients affected with myxedema, I cannot understand how the same extract can benefit an enlargement of the thyroid gland. In cases of goitre wherein I have employed thyroid extract, the symptoms usually became aggravated. As soon as the administration of thyroid extract was abandoned the patients invariably improved. I had a wonderful illustration of the value of one product in a case of artificial menopause. The woman had had both ovaries extirpated. After the loss of these two important organs the life of this woman was absolutely miserable She was thirty-eight years old. When I was consulted I found her suffering from the most alarming nervous symptoms. Her menstruation had ceased and she was in a sort of maniacal state. Eruptions of the skin had made their appearance and dizziness and other symptoms contributed to make life miserable for the patient. I could not relieve her by any medication whatever until my attention was called to a preparation of ovarian extract. I never saw a patient more benefited by this product. It has been stated many times here tonight that diabetes depends upon pathologic changes in the pancreatic glands. I have reported a case in which I examined the urine repeatedly, and never found any trace of sugar. I have talked with other physicians who have treated diseases of the pancreas and they have failed to find glycosuria present.

Doctor Samuel Bell: I treated a case of melancholia with thyroid extract. The patient was under observation some time before I noticed any beneficial results whatever. I began treatment with twenty grains a day and gradually increased the dosage to about fifty grains. I kept him on fifty grains a day for about a month. I also examined his blood microscopically, making counts before and after. In about a week, as the number of grains were increased, his temperature also increased, as well as his pulse to quite an extent and evidences of relief from the profound melancholia were present. After the treatment was discontinued he continued to improve, and soon his recovery was complete. After my success in this case, I selected about a dozen other cases and placed them under treatment. Some of the cases were not similar to the first one, but some were chronic and some acute. I think that in about fifty per cent of the cases there was decided improvement, while in others there was none. In cases wherein the circulation or digestion is poor, and assimilation is faulty, and wherein there is gastric melancholia, I think that if they are treated early beneficial results may be obtained from the use of thyroid extract.

Doctor Gurney: A case was diagnosed as Addison's disease by a physician friend some time ago and a month later the patient died. A postmortem was made and the glands were sent to **Doctor Klingmann**, of Ann Arbor, who rendered a report that they were tubercular.

Doctor Goux: I have used animal products in certain cases of catarrh of the middle ear after the acute stage had passed, when there was impairment of hearing, and I have found that for some hours after the application of a couple of drops of adrenal extract the hearing has been improved to the extent of several inches. It was employed in connection with other treatment, and just how much virtue the drug had, not using a great or considerable amount, I am unable to state.

Doctor Ives: I have been disappointed in the use of pepsin absolutely. I think we can understand how a thyroid in one case might be helped by thyroid extract and in another not be helped. There could easily be glandular hypertrophy in one case and in another connective tissue. I have not found much benefit from the use of thyroid extract in hypertrophied thyroid glands.

Doctor Chittick: My experience with suprarenal extract in hay fever has not been promising. I have a friend who is a chemist, who began to take it early in the season before he felt, or expected to feel, any symptoms of hay fever. It had no effect whatever. This young man has had hay fever since he was five or six years of age. Two years ago I took a couple of bottles of this solution with me to Mackinac Island, and was prepared to try the vaunted product on anyone who might have an attack of hay fever; so, not intending to charge for treatment, patients came to me the more freely on that account. One day I had about a dozen of the worst cases I ever saw. A lady whose home was in Detroit, I treated every half hour, and, although she experienced some relief, she said that it only lasted about ten minutes. In those severe cases I think there is a reaction, and the condition of the blood-vessels is no better than, if not worse than in the beginning of the treatment.

CENTRAL MICHIGAN MEDICAL SOCIETY.

STATED MEETING, LANSING, JANUARY 13, 1902.

The President, ALEXANDER D. HAGADORN, M. D., in the Chair

Reported by L. ANNA BALLARD, M. D., Secretary.

DISCUSSION OF PAPERS.

Doctor Johnson W. Hagadorn, of Lansing, read a paper entitled "The Diagnosis and Treatment of Incipient Tuberculosis." (See page 11.)

Doctor Barber: I believe that tuberculosis in many forms or status of existence is curable. I am satisfied that I have had good results in some cases with nuclein as well as with the hypodermic injection of tuberculin. I am surprised that the essayist did not mention the *x*-ray method of treatment in his paper. I am convinced that electrotherapeutists are achieving success with this agent in tubercular glands, joints and even in the lungs beyond that attained by any other remedy or form of treatment. The cases reported by electrotherapeutists in Chicago, San Francisco, and New York are too wonderful to pass unnoticed. Just how the *x*-ray acts is yet unknown, but the theory that it arrests the growth of tubercle bacilli and at the same time stimulates the normal tissue cell to greater activity seems to me the most plausible. No doubt some chemical change is produced by the electrolytic action of the ray on the tissue. The possibilities of the *x*-ray treatment in tuberculosis cannot be foretold, but I predict that the success derived from this form of treatment will be one of the wonders of the next decade.

DOCTOR R. J. SHANK: I have nothing new to add to the discussion on tuberculous diseases; but tubercular peritonitis, surgically treated, is in my experience, one of the most interesting and important affections that comes to the gynecologist. I have seen so many good results follow the complete removal of all intraperitoneal exudation, and release of dangerous adhesions, that I no longer hesitate a moment in advising abdominal section in this disease.

DOCTOR L. ANNA BALLARD: My opinion upon the treatment of primary tuberculosis was early formed when reading the writings of DIO LEWIS about twenty years ago. He was somewhat original in his treatment of these cases, and advocated what is now more heartily commended by the profession than in his day—the outdoor life for tuberculous people. His favorite prescription was to send his patients on horseback through pine regions, to spend the most of their waking hours inhaling fresh, pure air, redolent only with balsamic odors. He believed if any remedy could be justly considered a specific in consumption it is the *saddle*. Those views, early obtained, have stood by me, and kept me from wanting to huddle tuberculous people in sanitariums or in any other densely inhabited region. DOCTOR HAGADORN'S use of terebene is but a modern method of employing that remedy. Our nebulizers supply the medicated air, but we need to be vigilant and imperative, or our patients will not make the effort to secure the outdoor life, which they need. I do not look with favor upon the sending of these patients away from the home surroundings, unless I can find for them conditions that are well nigh ideal, giving them circles of friendship that will counteract the great depressing tendency to homesickness, which so often outweighs the beneficial effect of the most salubrious climate. The heart at rest and the mind occupied with congenial employment is a necessary adjuvant of any treatment. I have used the creosote treatment with indifferent success. I do not feel that it is a safe remedy with which to saturate the system. I have secured the best results by inhalations of vaporized balsamic compounds, or of hydrogen dioxid to subdue the odor of the sputum, and nuclein hypodermically. I want to say in this connection that I have ceased to use the serum syringe with its large needle for this purpose. The large dose of from sixty to ninety minims in one puncture, often gives pain from pressure, while I find patients do not mind two or three punctures of the fine needle, and the distribution of the dose in two or three places gives no disturbance whatever. With the usual aseptic case of the hypodermic, I have never had an abscess from the use of the nuclein. This agent is a cell tonic and I have seen patients who were weak and depressed, and could but languidly drag themselves to my office, after a few treatments seem infused with new life and ready to take up some light employment. How much nuclein can do for advanced stages of tuberculosis we have yet to learn. I would like to ask the essayist what length of time he generally finds necessary to keep patients in the primary stage under treatment.

DOCTOR J. W. HAGADORN: I have not made an exact estimate of the average time. I am sure, however, that it would not exceed three months for permanent effect.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.
AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

Bacilluria in Zymotic Diseases.—Lewis (*Edinburg Medical Journal*, December, 1901) reports an extensive piece of original work on the bacteriologic examination of urine in typhoid fever, scarlet fever and diphtheria. He emphasizes the practical importance of the subject in relation to the spread of disease and the measures to be taken in the prevention of infection arising from this source.

In a majority of cases of infectious diseases specific organisms are not constantly present in urine, and only occur in a moderate per cent of cases. So Lewis concludes that any escape of bacteria through the kidney is only accomplished when there is functional interference with the integrity of the renal epithelium or some congestive or inflammatory condition. Bacteria escaping by the way of the urine are usually accompanied by some other abnormal constituent, blood, pus or albumin.

The presence of specific bacteria in the urines of plague and typhoid fever is an established fact. In scarlet fever and diphtheria the difficulties of proof are greater. Lewis examined one hundred and fifty specimens of urine from forty-five cases of undoubted typhoid fever. The bacteriologic examination was unusually critical in order to exclude the many germs resembling the bacillus typhosus. Undoubtedly these pseudotyphoid germs have been taken for typhoid germs by many observers, and have thus increased the percentage of cases in which the bacillus typhosus has been found in the urine. In only *one* case was the bacillus typhosus isolated. Coliform bacilli, however, were extremely common. Most of the specimens were taken during the fourth, fifth and sixth weeks. The author believes that the percentage of typhoid bacilluria, as given by Richardson and Horton-Smith, twenty-five per cent, and generally accepted, is too high. He thinks there are two types of typhoid bacilluria: The first occurs in severe cases, commences at the height of the disease, is always associated with albuminuria, often with pyuria, sometimes with hematuria—and disappears in a few days or a week after the albumin. The second type commences in the later stages (even after the temperature has fallen to normal), persists into and during convalescence, even for weeks and it may be for months. It occurs in mild as well as severe cases, and albuminuria is not an invariable accompaniment.

The most successful drug for internal administration is urotropin. For disinfecting the urine he suggests half its volume of one to forty carbolic acid or one per cent formalin; or one-twentieth its volume of one to two thousand corrosive sublimate, for one-half to one hour.

The urine was examined in sixteen cases of scarlet fever, fifty-one specimens being used for culture. In seven cases streptococci were found at one period or another. Specimens were taken mostly during the first six weeks. Albuminuria was present in ten and nephritis in five of the sixteen. There were two varieties of streptococci, both of which differed from Klein's steptococcus, which has most claims to recognition as the specific organism, but resembled in morphology and structural characteristics a streptoccccus described by Baginsky and Sömmerfeld. This organism they found in the blood, organs and bone marrow of each of forty-two fatal cases of scarlet fever. It was also found in the throat during life.

Of diphtheria, seventeen cases and forty-three specimens of urine were examined, without, in a single case, isolating the bacillus diphtheriæ of Löffler.

Lewis concludes that in typhoid fever, urines that are cloudy, turbid or contain sediment should be examined bacteriologically, and that no patient should be discharged from supervision until absence of bacilluria has been proved. J. R. A.

The Association of Pulmonary Tuberculosis with both Primary and Secondary Endocarditis—Anders (*American Journal of the Medical Sciences*, January, 1902) has devoted special study during the past five years to the influence which chronic valvular diseases of the heart have upon the prevention and the progress of pulmonary tuberculosis. A review of the literature upon the subject reveals the fact that endocarditis produced by the tubercle bacillus is exceedingly rare. The endocardium like the interior of the blood-vessels is to an unusual degree resistant to this germ. Endocarditis caused by other organisms, is fairly common during the course of tuberculosis. Modern writers seem to think that endocarditis tuberculosa is more common than was thought by the earlier writers. Tessier, for instance, reports twelve cases out of one hundred autopsies, in which tubercle bacilli were present on the valves. Osler expresses doubt concerning the tuberculous nature of his own cases, as well as of those reported by others. Tuberculous sclerotic endocarditis is declared to be rather common, especially as it affects the mitral orifice.

The author is chiefly interested in the peculiar influences of preexisting heart diseases upon lung tuberculosis. It was formerly laid down as a clinical axiom that persons with a chronic heart disease could not develop pulmonary tuberculosis. This referred to left-sided heart disease in particular. Anders, though believing that such cases are rare, thinks, from his own observations, that they are more common than was formerly thought. Right-sided heart lesions, especially pulmonary stenosis, predispose to pulmonary tuberculosis. Lebert estimates that thirty-three per cent of all such cases, surviving the twentieth year, die of tuberculosis. This fact is supposed to be due to the undernourished condition of the lungs, resulting from the insufficient blood supply. In explaining the immunity offered by lesions of the left heart against tuberculosis, the theory of pulmonary congestion is usually offered. Abrams, however, ascribes the antagonism to cardiac hypertrophy. Tuberculosis, secondary to chronic valve lesions, may remain latent for a longer or a shorter period and is apt to be announced by the supervention of blood-spitting. J. R. A.

Treatment of Chronic Round Ulcer of the Stomach.—Fuetterer (*Journal of the American Medical Association*, January 11, 1902). The author, following the experiments of Silberman, asserts that an ulcer of the stomach can only form when there is a certain amount of hemoglobin lacking, and it must heal when the hemoglobin percentage is increased to a certain amount. His experiments of resecting bits of mucous membrane and removing one-third or more of the volume of the blood of an animal resulted after two weeks in an ulcer that had the appearance of ulcer in man, but had graunlations at its base, and microscopic examination showed regenerating epithelium growing from all sides toward the center of the ulcer. The gastric ulcer in man has no tendency to heal. The author holds that most of the statements of the experimental production of ulcer by the various methods are not backed up by detailed macroscopic and microscopic description. They are ulcers like the ones he obtains by the above method, ulcers that heal. A lack of volume of blood does not promote the formation of an ulcer, but if together with the above experiment the hemoglobin of the animal be destroyed by frequent injections of pyrogallic acid ulcers identical with those in man occur, which macroscopically and microscopically show no tendency to heal. He alludes to the frequency of gastric ulcer in combination with chlorosis and the different forms of secondary anemia or hemoglobinemia.

In the treatment of ulcer the hemoglobin must be ascertained and watched. Rest in bed must be instituted. The juice of five pounds of meat should be given daily to bring the percentage of hemoglobin up to normal as soon as possible. By giving only milk and nutritive enemata the anemic condition is made worse.

The author gives the history of a case of carcinoma that developed on a very small ulcer of the stomach. D. M. C.

A Case of Chronic Lymphatic Leukemia in an Infant.—Scott (*American Journal of the Medical Sciences*, January, 1902,) reports a case of chronic lymphatic leukemia in an Italian boy, aged nine months. The child's eldest sister, living in Italy, is said to have had an enlarged spleen with anemia from her infancy. The other members of the family are healthy. The parents noticed nothing peculiar in the boy until he was one month old. At this time they noticed that he was pale. Recurring attacks of intestinal catarrh were present during the child's illness. There was no evidence of rickets. At the first visit the spleen was found to extend four inches below the costal margin. There was no change in the liver or external lymphatic glands. In two months the spleen had enlarged so that it could be felt within one finger of the iliac crest and posteriorly two fingers below the costal margin. The eyegrounds showed neuroretinitis, enlargement of both retinal arteries and veins. No hemorrhages. No nosebleed. No intestinal or gastric hemorrhages. Unfortunately no autopsy was permitted.

The blood showed a decided leukocytosis with a very high per cent of lymphocytes. The leukocyte count was not made at the first visit in May. In June there were over one hundred thousand leukocytes per cubic millimeter. The number of leukocytes decreased through July and continued to decrease until there were but eighteen thousand six hundred in November. In January they began to rise again reaching thirty-six thousand seven hundred, and in the following May the count was eighty thousand. At the first visit in May the lymphocytes were eighty-three per cent, small lymphocytes sixty-five per cent. In June the lymphocytes were fifty-seven per cent, small twenty-seven per cent. In July they were sixty-two and four-tenths per cent, small forty-four per cent In November they were fifty-three and six-tenths per cent, small forty-four per cent. In January forty-four per cent, small twenty-three and four-tenths per cent, and in May they reached eighty and seven-tenths per cent, small sixty-six and nine-tenths per cent. Myelocytes were present but very few. There were large numbers of normoblasts, many mitotic. There were many polychromatophilic cells.

Lymphatic leukemia in infants is not common. The author says that the blood picture in his case corresponds accurately to the description given of the so-called von Jaksch's disease or pseudoleukemia anemia infantum, and that the clinical picture also coincides with the description of that disease.

The author was unable to find a careful differential count in any of von Jaksch's cases, a point which he regards essential to an accurate diagnosis. He furthermore raises the query "does our knowledge of the blood at the present day allow us to acknowledge that the disease described by von Jaksch is an entity?"

The duration, course, blood picture and termination of this case are in common with the leukemia of adults. The author is inclined to the view that in the secondary anemias, splenic anemia and pseudoleukemia anemia infantum have their proper place. D. M. C.

SURGERY.

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Median Perineal Prostatectomy.—Ferguson (*Journal of the American Medical Association,* Februray 22, 1902) regards this method of complete removal of the prostate as the most successful. The patient is put in the extreme lithotomy position and a complete median incision is made without injuring either the urethra, prostate, rectum, or anal sphincter. If necessary the incision may be enlarged by blunt dissection, when the capsule is divided transversly and held firmly by retractors and a prostatic depressor (of his own device) held by a trusty assistant. The enucleation is made by piecemeal with the fingers and a prostatic forceps. The author reports six cases by this method without a death, closure of the perineal wound in from fourteen to twenty days, and complete subsidence of previous symptoms. He claims for this method that it is the most direct route; that injury to the prostate is thereby avoided; that it is easy of performance; and that there is less danger from hemorrhage, sepsis, uremia and shock, while perineal drainage is more complete. H. O. W.

Conservative Treatment of Acute Pelvic Suppuration.—Polak (*Medical News,* March 1, 1902) regarding the uterus as the main avenue for infection of the adnexa, points out that by early recognition and timely removal of septic foci, the sexual organs may be conserved and a major operation avoided, at least until a time when it can be done with safety. After describing the onset of the various pathologic conditions and symptoms, he states that the pendulum has swung from mutilation to scientific conservatism.

The author's method of procedure is to first make a sterilized area of the field of operation, then seize the posterior lip of the cervix with a vulsellum and pull it downward aided by a weighted speculum, when the posterior utero-vaginal junction is brought to view; then the mucous membrane is incised transversely with scissors, further dissection, such as separating adhesions, being done with the fingers; then bring into view all of the adnexa by putting the patient in the Pryor position, using trowel retractors. If there is a pus-tube present, a sponge with tape attached is pushed into the pelvis, and the distended tube brought into the vagina, incised longitudinally, freed of pus and washed with a saline irrigation, after which it is wiped dry, its patency determined by a probe and the mucosa sutured to the peritoneum. If necessary the same operation can be done on the opposite side.

A gonorrheal salpingitis is similarly treated. Before replacing the tubes they are tightly packed with strips of iodoform gauze, and the pelvic cavity lightly filled with strips of gauze, thereby securing perfect drainage. The ends of these strips should be finally covered with dry sterilized gauze, changed frequently. On the third day the drainage is gradually loosened by pulling it out a few inches each day until the sixth day when it is all withdrawn. It is not replaced, neither is pelvic irrigation necessary. If a subsequent abdominal operation is necessary the danger is very much less than if done primarily. Polak's conclusions are as follows:

(1) Early diagnosis in pelvic suppuration is imperative.

(2) When the diagnosis is made, operate.

(3) The vaginal operation is the one of choice.

(4) When it is done early with strict asepsis it is curative and may preserve the function of the woman's organs.

(5) It improves the patient's condition, makes subsequent operations easy, and prevents rather than causes adhesions.

(6) It may be used for diagnosis in obscure cases without shock or injury to the patient, if aseptically performed.

Finally, this operation may be applied to every acute suppurative condition within the pelvis. H. O. W.

Carcinoma of Cecum. — Cumston and Vander Veer (*Annals of Surgery*, January, 1902) have contributed a joint paper on carcinoma of the cecum. While the condition is rare it is interesting and the paper is a valuable addition to surgical literature. The leading symptoms are: (1) pains; (2) alternating diarrhea and constipation; (3) loss of flesh; (4) dyspeptic troubles; (5) intestinal hemorrhage. Early symptoms may be entirely absent, the first intimation of trouble being a tumor in the right iliac region, or a fecal fistula may form without indicating the disease which caused it. Pain at first may be general and then become localized in the right iliac fossa, shooting from this point to the right leg, sacral or lumbar region, and recurring when the patient moves. In some instances when the patient is constipated the pain will be greatest during meals, always starting in one spot. Persistent diarrhea may follow vomiting or alternate with constipation. Pus and blood may be seen in the stools or pus alone. Rapid loss of flesh and strength are noticed in the early stage, cachexia appearing soon after. The digestive disturbances are nausea, vomiting, anorexia and difficult digestion. When symptoms of occlusion are prominent vomiting may become fecal or have a fecal taste, the degree of disturbance depending on the stage of the disease, blood may be found in the stools at this time or later. Having no fixed relations with the foregoing symptoms, a tumor may appear in the right iliac region, movable at first, but gradually becoming fixed to the surrounding tissue and quickly followed by enlargement of the neighboring lymph glands. Enlargement of glands does not always indicate secondary involvement as increase in size may mean simple infiltration.

The method of examination is clearly given and corresponds closely to that in vogue for examining the appendix. In doubtful cases ether anesthesia or distension of the colon with hydrogen gas is recommended.

The duration of the disease is not known because the origin is indefinite. Carcinoma of the cecum may have numerous complications. By direct extension it may involve the surrounding tissues and skin or produce thrombosis of the iliac vein; it may extend to the lymphatics causing pleurisy, septic or chronic peritonitis, or by metastasis reach the liver or lungs.

It must be differentiated from tuberculosis, chronic adenitis, actinomycosis, chronic appendicitis, tumor of the kidney and invagination,

The surgical treatment advised is total extirpation when the conditions will permit. Operation should not be undertaken when the patient is very weak; when enlarged lymphatics are numerous; when there is thrombosis of iliac or femoral vessels or the tumor is firmly fixed. When occlusion has taken place an artificial anus may be formed and a subsequent operation for the removal of the tumor be considered should the patient improve. The technique of operation is divided into five steps: (1) The abdominal incision; (2) The liberation of the intestine; (3) Resection of the cecum; (4) Enterorrhaphy or anastomosis; (5) Closing the abdominal incision. A curved incision such as is employed in ligating the iliac artery is advised as the one suited to most cases. Adherent intestines, omentum and peritoneum, are separated by a sponge when possible, while stronger adhesions and the mesentery are ligated in sections and divided. After applying padded clamps to the healthy colon and small intestine the growth is removed by cutting through healthy tissue. All enlarged lymphatics are removed.

A few of the most practical methods for joining the cut intestines are given with good illustrations. An objection raised to the use of the Murphy button is that one fitting the colon would so distend the ileum that it might cause gangrene.

The writers then give a complete report of two cases in their practice which terminated fatally. Doctor Cumston's case died twenty hours after operation and Doctor Vander Veer's lived nearly three days. The specimen from Doctor Cumston's case is well represented by two plates, which suggest the difficult operation necessary for its removal.

One of the benefits to be derived from the paper is the fact that these gentlemen had the courage to report their failures. While their results might deter some from operating upon similar cases, the clear presentation will be helpful to all in treating this disease, which always terminates fatally if its course is not checked.

C. G. D.

GYNECOLOGY.

By REUBEN PETERSON, A. B., M. D., Ann Arbor, Michigan.
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Treatment of Inversion of the Uterus.—Cushing (*Annals of Gynecology and Pediatry*, January, 1902) believes that the treatment of chronic inversion of the uterus recommended and employed by Thomas, has fallen into unmerited disuse. His opinion is based upon his experience with the operation in a case of inversion of fourteen months standing. The patient was twenty-five years of age and the condition of the uterus had given rise to alarming hemorrhages. The patient was placed in the Trendelenburg position, after the abdomen was opened, by means of which the top of the funnel, the tubes and ovaries could be easily brought outside the abdomen. The depression was dilated gradually and upward traction made by means of the round ligaments, and in this manner the reduction made complete. In order to hold the uterus in position, the fundus was stitched to the abdominal wall. The patient was discharged cured, and had no further hemorrhages. Cushing considers the operation, because of the use of the Trendelenburg position, easier, safer, cleaner, more surgical and satisfactory than any other.

Recovery after Different Methods of Hysterectomy.—Brown (*American Journal of Obstetrics*, December, 1901) has made a careful study of all the hysterectomies performed on two services at the Woman's Hospital during the past two years. There were thirty-four vaginal operations with two deaths—one insanity, one sepsis; thirty-six complete hysterectomies (abdominal) with one death—sepsis; fifty-nine supravaginal hysterectomies with five deaths—four sepsis, one pneumonia. From a study of the composite temperature charts, it was found that the patient made as even a thermal recovery after one method of operating as after another. His review of the one hundred and twenty-three operations leads him to conclude that:

(1) While the finished result of supravaginal hysterectomy is most satisfactory, the operation is, however, marred by the possibility of a secondary infection, at times terminating fatally. When this infection does occur it can only be reached by some secondary operation.

(2) The chance of this affection occurring is greatest when the subperitoneal space is drained through the canal of the cervical stump, or when the canal is left open. There is every reason to close the stump, as offering the best results.

(3) Total abdominal hysterectomy, though not such a finished operation as the supravaginal is, however, one in which there is less likelihood of any secondary complications, and, although objectionable on account of the suppurating cavity to be closed by contraction and granulation, yet offers to the patient a surer means of an uninterrupted recovery. [This last conclusion is not in accord with the experience of many gynecologists. Supra-

vaginal hysterectomy is a more surgical procedure, and if the raw surfaces in the pelvis have been properly covered with peritoneum, no drainage will be necessary and convalescence will be much smoother than when either vaginal or complete abdominal hysterectomy has been performed.—R. P.]

Treatment of Pelvic Suppuration by Vaginal Incision.—Stinson (*American Journal of Obstetrics*, December, 1901) discusses the treatment of rapidly acute cases of pelvic inflammation, due to abortion or septic infection. His conclusions are that: (1) Intraperitoneal pelvic inflammation is strictly a surgical disease; (2) Such inflammation should be operated upon as soon as the diagnosis is made, no matter what the state of the disease; (3) In most cases the disease is best approached and cured through the posterior cervical cul-de-sac incision; (4) All such inflammatory masses should be freely opened, the cavities thoroughly irrigated with hot antiseptic solutions, dried, and drained with loosely packed borated gauze strips; (5) Gauze drainage should be supplemented and aided by copious vaginal douches of one to one thousand hot watery solutions of potassium permanganate, given every three or four hours until discharge, fever, et cetera, are gotten under control; (6) The cul-de-sac operation is extremely satisfactory in the treatment of intraperitoneal pelvic inflammation and most of its sequelæ; the possibility of infecting the general peritoneum is very much reduced by operating through the cul-de-sac, as all fluids in the pelvis can be easily and thoroughly evacuated along lines of gravitation; (7) The vaginal incision, when performed early in the disease, cures nearly one hundred per cent of all cases; and while the later vaginal incision is not always so certainly cured, it is equally important; (8) In all cases wherein diffuse peritonitis is present one is obliged to complete the operation at once with laparotomy, et cetera, for this reason the patient, instruments, et cetera should always be prepared beforehand, in readiness, if need be, for very extensive intraperitoneal operations; (9) The vaginal operation for pus in the pelvic cavity is less difficult to perform than when done through an abdominal opening; and although the surgery is less complete, yet the dangers are less to the patient.

OBSTETRICS.

By THOMAS STONE BURR, A. B., M. D., ANN ARBOR, MICHIGAN.
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Pregnancies Following Ventral Fixation.—Dickinson (*American Journal of Obstetrics*, July, 1901) reports two cases of dystocia following ventral fixation of the uterus. The first was in a woman thirty-five years of age who had had four previous easy labors. At term a tumor was said to obstruct delivery and version and perhaps embryotomy were done. Peritonitis with extensive exudate, caused by a rupture of the uterus into the broad ligament followed. The fundus was found fixed to a scar above the pubes and the posterior wall, thin and relaxed. Death ensued. In the other case Caesarean section was performed, after attempts had been made to dilate and deliver through the cervix. The woman was thirty-three years of age and had had the ventral fixation performed for severe dysmenorrhea. Examination under anesthesia at term showed the right horn of the uterus situated high up and to the front. The left ovary and round ligament lay along Poupart's ligament, while the external os was against the middle of the first sacral vertebra. At the operation the uterus was quickly incised and twins delivered; the patient, however, never rallied and died of shock, internal hemorrhage being excluded by inspection through the removal of an abdominal stitch. Dickinson is of the opinion that, under certain conditions it is well to follow the plan of Bidone, namely, open the abdomen and free the uterus from adhesions. He draws a distinction between ventral fixation and ventral suspension. The suspension ligaments following the last species of operation will readily pull out in pregnancy. Of thirty-seven cases of suspension of the uterus, whose subsequent histories he was able to follow, he found four pregnancies. Of these, two have aborted, one has been delivered at term without any trouble, and the third has not yet been confined. He is also cognizant of four unpublished ventrosuspensions by Fowler's method of passing the urachus through the fundus. Of these, one aborted and there were three facile deliveries at term.

Puerperal Eclampsia.—Simpson (*The Lancet*, June 29, 1901), in reporting three cases of puerperal eclampsia occurring in his practice takes occasion to emphasize Herman's statement that in some eclamptics the urine will show paraglobulin, while in others the quantity of serum-albumin is in excess. Recovery of patients with the latter findings is exceedingly doubtful, while with judicious treatment, the others may be saved. Simpson advocates the trial of simpler methods first in the treatment of eclampsia. He calls attention to the advantages of diuretics, diaphoretics, bromides and chloroform. These he would use before resorting to morphin and hypodermoclysis. He believes that premature labor should be induced in the earliest months by the use of the bougie, which should be kept *in situ* long enough to produce powerful and regular contractions, and then withdrawn to be reinserted if pains lag. In plethoric patients venesection is a most valuable form of treatment, but should not be used indiscriminately.

Saline Infusion in Puerperal Eclampsia.—Groves (*American Journal of Obstetrics*, July, 1901) reports two cases of eclampsia treated by saline infusions and discusses the pathology and treatment of the disease. He has tabulated forty-seven cases of puerperal eclampsia treated by this method, chiefly Porak (thirteen) and Jardine (twenty-two), with a resulting mortality of twelve and seven-tenths per cent. Groves is a believer in the toxic nature of eclampsia, and thinks that the essential lesion consists of minute capillary thrombi with hemorrhagic infarctions, surrounded by tissue necrosis. The same characteristics would be found in the brain, liver and kidneys. The toxins may be considered as arising (1) from the placenta, (2) from the fetus, (3) from the alimentary canal. The actual convulsions result when these toxins produce the coagulation of the blood and the multiple thrombi. Groves bases his conclusion, that the action of saline infusion depends upon the hindering of the formation of the capillary thrombi, and not upon the production of diuresis, upon the fact that the convulsions always precede this phenomenon.

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., Detroit, Michigan.
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Value of Antitoxin in Diphtheria.—Wells (*Virginia Medical Semimonthly*, January 24), in a paper read before the Medical Society of the District of Columbia, entitled "Intubation in Laryngeal Diphtheria, with Special Reference to the Influence of Antitoxin," says that the efficacy of antitoxin in the treatment of diphtheria has now become so firmly established in the minds of medical practicians the world over that if a dissenting voice is heard it is from some obscure corner, powerless to cause alarm. Behring serum has reduced the mortality of diphtheria in general from fifty to fifteen per cent, and laryngeal, including those operated on and those not, from seventy to twenty-five per cent, and, in addition to the fact that it has reduced the mortality of both tracheotomy and intubation, it has materially reduced the proportion of cases in which surgical intervention is necessary to relieve the obstructed breathing. Not over half as many cases require operation as formerly. The greatest value of antitoxin is in those cases in which the membrane has extended into the larynx and trachea, cases in which there may be question of operation. It is preeminently a membrane dissolving-agent; prevents its extension and reformation. Antitoxin has by its introduction made necessary a readjudication of the claims of intubation and tracheotomy; the latter are no longer rivals, but intubation is rather to be considered as being within the circle of tracheotomy and occupying the larger portion of the ground. The author believes cases may be saved, however, by tracheotomy after intubation has failed, especially when asphyxia supervenes upon extubation, and he says the tube should be reinserted, and if on repeated removals the asphyxia reappears, tracheotomy should be performed. He insists on *early* intubation (as intubation is in itself a harmless operation and is followed by no ill consequences to the general health) whenever the indications for the operation are present, thereby increasing the child's chances of recovery, and would only allow temporizing when the patient can be in a hospital closely guarded, and when the operator can be within a moment's call. He concludes that the early administration of antitoxin so modifies the disease, especially the laryngeal cases, and that it so shortens the duration of the disease, that, consequently, the time of retention of the tube has been greatly shortened, and, therefore, argument for the early intervention and more universal employment of the tube is strengthened.

Symptoms Peculiar to Scarlet Fever.—Jerowitz (*Medical Herald*, January, 1902) has observed a few symptoms not commonly spoken of in the general description of scarlet fever, and mentions the following:

(1) Disturbance of sensation, consisting of numbness, formication or pricking sensations in the hands, and observed during the early stage of eruption.

(2) Rapid pulse in relation to temperature, being as high as 150, with temperature 101° and quite characteristic.

(3) Rash may be mild or absent, or resemble reflex erythema, affecting only portions of the skin.

(4) Angina may be absent entirely.

(5) Some cases present absolutely no symptoms and would escape observation were it not for the desquamation which makes its appearance without previous warning.

(6) Some cases present postscarlatinal dropsy as the first indication.

The author says that from the above it is evident that in order to diagnose scarlet fever it is not necessary to have all the classical symptoms. He believes every sore throat, however mild, accompanied by even the slightest rash, should be regarded as scarlet fever, and that desquamation of the skin or the appearance of dropsy or otorrhea should induce us to make a thorough investigation with the view of finding scarlet fever as the prime factor. Jerowitz further says that as the complications and sequelæ of scarlet fever are, as a rule, the only things that require attention, and as they are often the first evidence of a preexistent scarlet fever, it will be well to mention some of the more frequent, as follows: (1) Diphtheria; (2) joint lesions; (3) otitis; (4) adenitis and cellulitis of the neck; (5) ferunculosis; (6) nephritis (postscarlatinal; (7) pneumonia; (8) inflammation of serous membrane.

OPHTHALMOLOGY.

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Iridectomy in Glaucoma.—Little (*Ophthalmic Record,* December 1901), in his late presidential address before the Ophthalmic Society of the United Kingdom, gave the following conclusions on the value of iridectomy in primary chronic glaucoma. Miotics are palliative and not curative. Iridectomy is the only known cure for this disease. His conclusions were based on the observation of sixty-seven cases. Of these eleven are dead, nineteen are not to be found, while thirty-seven have been traced. Of these ten have become blind; one from atrophy of the globe, one from recurrence of the disease, and eight from optic atrophy, while in all except one the tension is normal. In twenty-three the vision was better than when the operation was performed. He therefore concludes that iridectomy in the majority of cases does reduce the tension permanently. He advocates operation in the premonitory as well as in the late stages of the disease.

Conical Cornea with Hyperopic Refraction.—Bruner (*Ophthalmic Record*, December, 1901) reports the condition in a man twenty years of age. Patient had no headache, but was unable to see well at distance or when reading. Examination showed marked conical cornea in each eye. Media clear; no fundus lesion. He had monocular diplopia with the right eye. Refraction under atropin O. D. S — 2.00 = C + 9.00 axis 165° = six-ninths; O. S. S + 1.50 = C + 1.50 axis 15° = six-sixths partly. The correction of the right eye and attempt at binocular vision caused so much annoyance on account of the very high degree of anisometropia that it was thought best to correct only the left eye, for which he was given S + 1.00 = C + 1.50 axis 15°.

Divergent Strabismus.—Fox (*Medical Bulletin*, February, 1902) reports his deductions from eighty-five operations for divergent strabismus. The operation which he claims is simpler than those suggested by DeWecker, Grandclement, and Panas, is divided into the following parts and is performed under cocain: (1) Tenotomy of both external recti muscles and stretching of conjunctiva and Tenon's capsule; (2) making the elliptical opening either on one eye or both; (3) suturing this opening.

The elliptical opening is made after grasping the conjunctiva with the retractor forceps vertically, midway between the cornea and caruncle and directly over the internal muscle. Raise the forceps two or three times to take up as much of the redundant tissue as may be necessary; then with curved scissors cut, with one long sweep, the up-raised conjunctiva and capsule close to the eye, making an elliptical opening. This opening now extends in a vertical direction, beginning below the lower level of the cornea to a point above the same; its width over the muscle is about one full centimeter at its greatest diameter. The conjunctiva is then separated around this elliptical wound from its subconjunctival tissues at all points. The elliptical opening is brought together with four sutures; the upper suture is inserted through conjunctiva and Tenon's capsule midway between the insertion of the superior rectus muscle and the margin of the cornea; a similar suture is passed through the lower margin of the conjunctiva and brought out midway between the insertion of the inferior muscle and the margin of the cornea; this thread is then tied, and in like manner the upper thread; two more sutures are passed through the margin of the lips of the wound and united.

This constitutes the details of the operation. The object of the operator should be to produce one to four millimeters of convergence, which disappears during cicatrization. When the defect is not more than two or three millimeters Fox has performed an external tenotomy on both and stretched Tenon's capsule, with excellent results, without taking out the elliptical section, especially in those cases wherein the eyes could be held by the patient at fixed convergence at ten inches.

This operation is similar in many details to that of De Wecker, Knapp, Snellen, Gruening, and Grandclement, yet the author is sure its simplicity has much to commend it, and the results obtained in his hands make it preferable to any one of the above-mentioned methods.

NEUROLOGY.

By AUGUSTUS WRIGHT IVES, M. D., DETROIT, MICHIGAN.
PROFESSOR OF PHYSIOLOGY AND ASSISTANT IN NEUROLOGY AND PSYCHOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

Trigeminal Neuralgia.—Brophy (*Clinical Review*, March, 1902) lays stress on the fact that in operating for removal of the inferior dental nerve in trigeminal neuralgia, one does not remove the vitalizing or trophic nerve of the lower teeth, which, he says, "are not supplied from branches given off directly from the inferior dental nerve as your works on anatomy tell you. * * * The nerve supply is direct from a sort of plexus that surrounds the root of the teeth." The doctor claims to have frequently removed the inferior dental nerve and found the teeth sensitive and alive months after. If this author is correct it makes the operation for persistent neuralgia of this nerve less serious.

Etiologic Factors in Mental Disease.—Bondurant (*Mobile Medical and Surgical Journal*, February, 1902) contributes a most valuable paper on "Insanity." The article is one of a series that is to follow, and cannot be too highly commended, especially for the stress laid on the too oft forgotten fact that mental diseases have as certain and distinct physical bases as do diseases of other tissues. The sooner the profession ceases to surround psychoses and their pathology with mystery and seek the etiologic factor, be it biochemical, reflex or some gross lesion, the more progress it will achieve. Neurons composed of structurally normal cells and fibres, associated with each other in a normal manner and normally nourished, functionate normally and result in a normal mind, while irregularities in structure, association and nutrition must and do result in psychoses more or less pronounced. The doctor says: "Insanity is not a disease, it is a group of symptoms of disease and of neuron malformation. * * * In cases of extreme congenital mental defect, gross abnormalities of brain structure are the rule. * * * In less extreme states of neurodegeneracy, the anatomical changes depart less widely from the normal type. In the higher degenerates no well pronounced abnormalities may be demonstrable," due most certainly to our inability with present means and knowledge to find them.

Electricity and Nerve Energy.—Pearce (*Medical Fortnightly*, January, 1902) says "nerve energy to our mind is but the most refined form of electricity," and cites the light flash perceived when the oculist severs the optic nerve as tending to prove the statement; which, however, no more proves it than would a blow over the optic centers, such as is received by striking the back of the head on the ice when one "sees stars," or pressure on the eyeball, giving a sensation of light. When these centers are stimulated by whatever means we would expect light sensations. The fact alone that electric waves travel many million times faster than nerve impulses must make it certain that, notwithstanding such nerve impulses generate a slight electric current, the two forces are not identical.

Autosuggestive Insanity.—Noyes (*Medical News*, November 2, 1901), in his article on "Concussion and Hystero-Epilepsy," makes the following statements which bring to our mind the celebrated Hamburger murder case tried in Detroit a few years ago. "No more potent suggestion can be made than the set of symptoms experienced in connection with an accident. * * * In a suggestible individual even organic disease readily occurs. * * * Let the suggestion be presented to the mind that these symptoms must remain permanently and a full-fledged case of * * * hysteria is developed. The development of a fixed idea through autosuggestion of friends or lawyers is made a very simple matter," et cetera. A very general impression among alienists who watched the trial was that Hamburger, the murderer, was sane at the time and after the murder, but as a plea of insanity was instituted it was suggested to him to act the fool, answer no questions, hang his head, et cetera, till a hypnotic or hysteric condition supervened, more or less undermining his mentality. Experts were hired by the prosecution, all of whom of course testified in favor of the sanity of the prisoner, while those paid by the defense swore he was insane. In what an unenviable light it puts the expert medical man to be paid to testify on one side or the other, instead of receiving pay for telling exactly what he thinks and finds, irrespective of which side it helps or hurts.

THERAPEUTICS.

BY DELOS LEONARD PARKER, PH. B., M. D., DETROIT, MICHIGAN.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

The Action of Mercury Upon the System.—Porter (*Post-Graduate*, September, 1901) presents views upon the action of mercury as a therapeutic agent that are very interesting. In his own words "To understand the full possibilities of mercury upon the system as a whole its action upon the liver must be accurately apprehended." This action, he says, is a progressive one, being first of a stimulating nature, then of a cholagogue character with greatly increased secretion of bile, and finally one of a depressant quality in which the flow of bile is greatly decreased.

The author begins his discussion of the subject by stating that the general belief is that inorganic compounds are not decomposed within the animal organism and hence that there is no need to consider the possibility of the mercurials producing unexpected effects on account of becoming changed into new products in the system. He takes calomel as the most active cathartic of the mercury salts and follows what he considers its mode of action. In the first place he states that this salt is comparatively nonirritating and also insoluble. For these reasons it cannot cause catharsis by direct action upon the intestines. When, however, it has been carried to the liver its property of increasing the secretion and flow of bile and bile acids comes into play, with the result that the intestine is irritated by the bile acids thrown into it and catharsis becomes established as a result. He states as proof of the truth of the above that when the common bile duct is occluded, either artificially in experiment or pathologically by the pressure of tumors, the administration of calomel will not cause catharsis, while under the same circumstances the administration of bile acids is followed by brisk cathartic and cholagogue effects.

After the normal activity of the hepatic cells has continued some time and the increased secretion has been carried to the intestine the third stage of the process is reached. Here there is an exhausted condition of the liver cells due to overstimulation and characterized by greatly lessened secretions. The liver may be said to be at rest and this under the most favorable conditions. For "the inactive, sluggish and often absolutely pathologic protoplasm of the cells is displaced and replaced by that which is physiologic." Under these circumstances Porter claims that when the cells begin again to secrete bile they are in the most favorable condition for this physiologic act. As a result food is better digested and assimilated and secretion and excretion of all parts of the body are carried on more perfectly. For this reason poisons and other etiologic factors of disease are destroyed or expelled from the body to as great a degree as possible.

Porter considers the salts of mercury best adapted to produce the effects mentioned above to be, in the order of their activity, hydrargyri chloridum mite, massa hydrargyri and hydrargyrum cum creta.

Concerning ptyalism the author also has decided views. He thinks this undesirable effect need never be feared from the administration of mercury so long as the liver cells are not too inactive to intercept all the mercurial that comes to the liver. He believes the administration of the salts of the metal with opium to be particularly reprehensible, since the latter may so lessen the activity of the hepatic cells as to allow salivation to occur.

"In summing up, it may be said that the principal actions of the mercurials are:

"(1) Stimulant to the hepatic cells.

"(2) Cholagogue in action by virtue of exciting hypersecretion of the bile acids.

"(3) Sedative, due to the too previous actions.

"(4) That its alterative, antiphlogistic, antisyphilitic, diuretic actions, et cetera, are secondary to the above actions.

"(5) That ptyalism from mercury is due to the inactivity of the hepatic cells, and to the salivary glands attempting to do what should have been done by the hepatic cells."

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., Detroit, Michigan.
LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

Smallpox and Vaccination. — To the *Monthly Bulletin of the Indiana State Board of Health* we are indebted for the following interesting bit of information:

"Doctor Hodges, a practitioner at Freedom, Owen county, went to Russelville, Illinois, on a visit. When he returned he was in the pustular stage of smallpox. When badly broken out he rode from Vincennes to Freedom in a car containing many other passengers. At this writing Doctor Hodges' daughter is down with smallpox. Now the question is, why did not Doctor Hodges, who is a graduate of the Louisville Hospital Medical School, vaccinate himself and every member of his family long ago? Again, why should any man who has the faintest idea of his responsibilities and duties as a citizen travel in a railway coach when in the pustular stage of smallpox?"

The writer would wish to underscore the last sentence and add the additional statement that there are at present eight patients with smallpox in Detroit, all of whom contracted the disease elsewhere and all of whom travelled to this city in railway coaches when they were broken out with the disease; some in the pustular and some in the earlier stages. Is it strange under these circumstances that the present epidemic is so widespread?

* * *

"Among the recent victims of smallpox in Philadelphia," says the *Maryland Medical Journal*, "was Doctor George Shively, aged seventy-one, who died on September 29. Doctor Shively was graduated from Jefferson Medical College in 1851. Physicians have had their share of the disease in the present epidemic. An unvaccinated physician in Toronto died of smallpox some months ago. A Maryland physician, who had not been vaccinated since childhood had an attack of smallpox in 1900. From Parkersburg, West Virginia, comes the story of a young unvaccinated physician, who, though repeatedly urged by his confreres to avail himself of the protection which the profession was constantly urging upon the community, neglected to do so, and as a result suffered an attack of smallpox. A physician in

Sussex County, Delaware, not vaccinated since infancy, had smallpox in April, 1901. Maryland physicians will undoubtedly be much exposed . . . and should exemplify their faith in vaccination by revaccinating themselves."

In Detroit a physician of our acquaintance came down with smallpox in the epidemic of 1894, another in 1898, when there were a few cases in this city, and still a third contracted the disease from a patient in 1900. One of these physicians had never been vaccinated and the other two not since childhood.

In 1896 an epidemic broke out among medical students here and none of the victims had ever been vaccinated. Does it not seem as though all physicians and even medical students should practice what they preach—and be vaccinated?

* * *

A New Use for Vaccine.—At least two or three observers have reported that vaccination exerts a prophylactic and curative effect on the grip (*Monthly Bulletin of the Indiana State Board of Health*). Doctor Gram, Register of the Buffalo Health Department, in particular, noticed the decided influence of vaccine in this direction, and has done some experimentation along that line. In his city a fierce epidemic of grip has been raging, and at the same time the health officers were carrying on a general vaccination. So the doctor has had ample opportunity to make observations. He noticed that, in those affected, the grip disappeared simultaneously with the manifestations of the vaccination. He then experimented on himself and others having the grip, and found invariably the attack was aborted and the patient left free from the usual consequent debility and other distressing sequels.

Bovine vaccine has also been observed to be instrumental in the removal of ordinary warts.

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN.
ASSISTANT PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

The Condition of the Blood and Marrow in Chronic Arsenical Poisoning with Special Reference to the Occurrence of Cutaneous Pigmentation.—Muir (*Journal of Pathology and Bacteriology*, November, 1901). The opportunity afforded by the recent epidemic of chronic arsenical poisoning due to the presence of arsenic in beer, occurring in Manchester, England, has been taken advantage of by a number of investigators to enrich our knowledge concerning the pathology of this condition. Muir's work bears particularly upon the question of the relationship existing between the pigment of the skin and hemoglobin. Since during the Manchester epidemic numerous cases presenting abnormal pigmentation were seen it was hoped that the study of these might throw some light upon the problem. Forty-eight cases were examined by Muir, nine of them at autopsy. The conclusions reached by him as the result of this study may be briefly stated:

(1) The blood of arsenical patients having deep cutaneous pigmentation is decidedly richer in red cells and hemoglobin than that of similar slightly pigmented or unpigmented cases.

(2) This fact may be taken as disproving the hypothesis accepted by many that the pigmentation is due to the destruction of hemoglobin or red cells, and is evidence for thinking that the melanin of the skin is an important element in the production of hemoglobin.

(3) Arsenic causes in human beings a decided erythroblastic reaction in the marrow of the long bone, and probably a slight leucoblastic reaction.

(4) The erythroblastic function of the marrow is more easily stimulated in the presence of a large store of cutaneous melanin.

The chief value of Muir's paper is the knowledge otained of the changes in the bone marrow due to minute doses of arsenic continued for a long time. His reasons for believing that melanin is a factor in the production of hemoglobin cannot be regarded as convincing.

Oidiomycosis of the Skin and its Fungi.—Ricketts (*Journal of Medical Research*, December, 1901). To an American observer, Gilchrist, belongs the honor of the first observation and description of a disease of the skin caused by yeast-like organisms, which were later identified as blastomycetes. To the condition Gilchrist gave the name of blastomycetic dermatitis. Twenty-six cases in all have been reported since 1896, fifteen of which were discovered in Rush Medical College. Twelve of these are studied by Ricketts in the present article. In all the condition presents a uniform clinical history. The skin of the hand, forearm and face are most frequently attacked, the disease beginning as a papule which becomes pustular, yielding a glairy, tenacious pus. The ulcer thus formed gradually extends, is covered with coarse, soft and friable papillæ and surrounded by a reddened areola in which minute abscesses are seen. Cicatricial healing takes place in the oldest portions as the border advances. Periods of rapid extension alternate with those of relative quietude. In the majority of cases there is no glandular involvement. The disease runs a protracted and progressive course, extending over ten or twelve years. The resulting deformity caused by the scars may be very great, particularly in the face. General toxic symptoms are absent. The internal administration of potassium iodid appears to have a definite therapeutic value.

The gross pathologic anatomy is characteristic and uniform. Naked-eye inspection of a cross-section shows first a papillary zone, beneath this a homogeneous, vascularized, grayish-red, cellular zone, in which there are numerous minute abscesses. Beneath this is an unaltered layer of subcutaneous fat as the limit of deep extension. On microscopic examination the lesions present as most striking histologic features a great amount of "carcinomatoid" epithelial hyperplasia with minute intraepithelial abscesses, beneath this in the corium a granulomatous change characterized by masses of plasma-cells, minute abscesses, tuberculoid nodules and giant-cells. In some cases large numbers of eosinophile cells are present. Throughout the epidermal and subepidermal abscesses, and also distributed unevenly and in small numbers in the granulation tissue there is found a spherical, capsulated, budding organism of the average size of about ten microns. In human tissue it never forms threads similar to those seen in cultures. The organisms may be most readily demonstrated by the microscopic examination of the pus from the miliary abscesses or in a fragment of the verrucous tissue. The pus may be examined either in a thirty per cent potassium hydrate or sodium hydrate solution or in water. In the tissues the organism shows a homogeneous, doubly-contoured capsule, and a granular protoplasm which is often vacuolated; it possesses no specific staining reactions. The occurrence of pairs or budding forms in tissue is common. The organisms grow readily on ordinary culture media, maltose agar being considered the most suitable medium.

Ricketts concludes his valuable contribution with the statement that the so-called protozoic disease of Posadas, Wernicke and others, the saccharomycosis hominis of Busse and Curtis, and the blastomycetic dermatitis of Gilchrist are various manifestations of the same disease. The skin lesion possesses constant clinical and histological characteristics which separate it positively from all other skin diseases, particularly verrucous tuberculosis, carcinoma and syphilis. The organisms isolated from various cases differ in minor respects but are so closely related morphologically and biologically as to justify their inclusion in a common genus, *Oidium*. Oidiomycosis is an appropriate term for the condition caused by the organism and Oidiomycosis cutis for the disease as it occurs in the skin.

EDITORIAL COMMENT.

1879—GREETING—1902.

BEGINNING with this number the editors take pleasure in affording the readers of The Physician and Surgeon a brief survey of current medical thought. As will be observed no attempt is or will be made to edit the world's literature or even to note in any detail the voluminous material. The plan adopted by this journal—one that seems to be of the greatest practical value—consists in brief restatements of newly discovered facts, opinions, researches, and case reports as they appeal to thinkers and workers in the special departments represented. A glance at the list of collaborators, most of whom are widely known, will amply satisfy an exacting demand.

We shall continue to publish, as heretofore, selected articles from the pens of reputable medical writers. **The Physician and Surgeon** is not presumed to be the *only* medical journal or even the only *ethical* one. It is, however, a journal of comparatively long standing, of respectable character, and of fair dealing of both men and events, as attested by the many good words voluntarily spoken in its favor. It may not be perfect in the eyes of all men, but it aims to justly conserve the interests of its readers and the numerous medical organizations for which it is the official medium of communication.

With this prelude the journal again salutes its many friends and enters upon the twenty-fourth year of its publication.

ON THE REGISTRATION OF DEATHS AND A STANDARD DEATH CERTIFICATE.

THE public generally and many physicians though cognizant of death certificates as a legal requirement, and though complying therewith, do so as a matter of course without understanding their necessity and use. They may not be aware of it and yet it is a fact that almost every civilized nation except the United States provide for and publish these and other statistics relating to the movement of the population. Many states of the United States have already passed laws enforcing these provisions, but as there are still some nonregistration areas, and as some reports are too meagre to be of use, an effort has been made by the Census Office at Washington in conjunction with the American Public Health Association to secure more accurate and uniform reports throughout the country.

The first and chief purpose of registering deaths is for the protection of certain rights and privileges of individuals and of families. The validity of this object must be easily apparent. A second use is for the compilation of sanitary statistics, whereby local, state and federal public health authorities may devise and carry out sanitary measures for the public good. In addition to these, by means of such reports, data may be collected essential to the knowledge of the movement of our population.

As Michigan is a registration state it is to be presumed that the necessary provisions of a good registration law are understood. Indeed attention has been directed to this end since 1867, when the old State Medical Association started the movement. A committee of the Michigan State Medical Society agitated the subject again in 1895, as a result of which a very satisfactory law was enacted in 1897, by which Michigan complies with the national requirements. Under the present law all deaths in the State of Michigan are certified to by the attending physicians or by coroners, and other information as to the causes of death together with personal particulars of the deceased accompany them. At the close of each month the original certificates are mailed to the State Department and become permanent records for legal or sanitary purposes.

In this day the people of the United States, if not cosmopolitical, are in a multitude of cases inhabitants of several states in different periods of their lives, which fact makes it desirable that a standard death certificate be universally employed. For satisfactory study also, accuracy demands that the reports from the different states be uniform. The authorities are well aware of the folly of harassing the public with useless inquiries, as for instance for the proof of birth as was recently reported in a notable instance, but the essential data should be forthcoming even at some trouble to members of our profession.

ANNOTATIONS.

DELAY OF ISSUANCE.

THE management greatly regret the tardy appearance of this and previous numbers of The Physician and Surgeon. The delay has been caused by mismanagement in the printing office from which the journal is issued, and consequently could not be obviated by the publisher. The concern has been "running at large" for the past two years, and recently encountered an accident by stumbling over a "closure." It is now in the hands of a receiver, MR. CHARLES J. JOHNSON, who has been the successful manager of the Eby Printing Company (Corporation), of Detroit, and will soon be on its feet again. In the meantime the date of issue of the journal will be changed to the first of the month as rapidly as practicable without causing the numbers to appear in too close succession.

MORTALITY OF MICHIGAN—1901.

THE mortality statistics of Michigan for the years 1900 and 1901* present some interesting facts. It is noticeable in the first place that the death rate per one thousand population increased from thirteen and nine-tenths to fourteen. This increase, however, is not due to a uniform variation. It is notable that infant mortality, both of children under one year of age and also of those from one to four years, materially decreased, while the death rate of elderly persons, aged sixty-five and over, rose two per cent, thus indicating a greater longevity in 1901 than in the preceding year.

Relative to diseases it is to be observed that the mortality from consumption, typhoid fever, diphtheria and croup, measles and whooping-cough, fell more or less in each instance, while it rose in scarlet fever, pneumonia, influenza, cancer and from violence. The increasing mortality from pneumonia has already been referred to in this journal. According to compilations it has been the most fatal disease in Michigan during the past two years, leading even consumption. The United State Census Bulletin has also reported a greater increase in the death rate from pneumonia than from consumption throughout the country, the contrast being most marked in the registration areas. These facts strongly support the position of the State Board of Health relative to sanitary precautions to be observed in this disease.

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* The *Michigan Monthly Bulletin of Vital Statistics*, January, 1902.

MEDICAL NEWS.

EIGHTIETH BIRTHDAY ANNIVERSARY.

DOCTOR GEORGE K. JOHNSON, of Grand Rapids, was tendered an informal complimentary luncheon in the ordinary of the Morton House, January 17, 1902, by nineteen of his immediate professional friends, the occasion being the doctor's eightieth birthday. It was the intention originally to celebrate the event by a banquet of large proportions, inviting professional friends and acquaintances resident throughout the State, but, owing to the doctor's recent bereavement caused by the demise of a daughter, the idea was abandoned and a quietly arranged supper served instead. Neither toasts nor speeches were a feature of the gathering, but informal story telling and short talks were enjoyed. Genial Doctor Griswold acted as chairman, and each one present contributed a few remarks bearing upon the profound respect which the profession entertain for the guest of honor. Doctor Johnson has practiced medicine in Michigan since June, 1846, and has been a resident of Grand Rapids since 1856. Although he has passed the eightieth milestone he is still pursuing disease, and personally attends to a large clientele.

MINOR INTELLIGENCE.

DOCTOR E. A. PAUL, representing William Wood & Company, of New York, is canvassing the Detroit physicians for the new edition of the "Reference Handbook of the Medical Sciences."

THE report of the Detroit Polyclinic, which was rendered at its recent annual meeting, showed that twenty-seven hundred patients were treated during the past year. The following officers were elected for 1902: President, Doctor Louis J. Goux; vicepresident, Doctor S. G. McDonald; secretary, Doctor S. E. Sanderson.

DOCTOR WILLIAM R. HANES, a house physician at Harper Hospital, Detroit, recently died of septic infection received through an abrasion on one of his fingers, while performing a postmortem about a week previously. Deceased was twenty-five years of age, and a graduate of the Detroit College of Medicine, class of 1901, since which time he had been connected with the hospital. This is the first instance of death of a physician while rendering service at this institution, and a memorial tablet is proposed for the martyr to science.

THE Jackson County Medical Society held its first annual meeting in Jackson, January 14 Several papers were read, officers were elected, and a banquet was served in the evening. President, Doctor Albert E. Bulson (reelected); vicepresident, Doctor Mary C. Strong (reelected); secretary, Doctor R. Grace Hendrick; treasurer, Doctor Frederick A. Rogers (reelected).

THE Western Ophthalmologic and Otolaryngologic Association will hold its seventh annual meeting in Chicago, April 10, 11, and 12, 1902. The provisional program contains the titles of thirty-one papers. The address will be delivered by President Christian R. Holmes, of Cincinnati. The secretary is Doctor William L. Ballinger, of Chicago.

THE Barry and Eaton Medical Association held its regular quarterly meeting at Hastings, Thursday, January 30, 1902, under the presidency of Doctor J. H. Mowers. Papers were read by Doctor Cressy L. Wilbur, of Lansing, "Statistics in Practical Medicine;" Doctor A. W. Crane, of Kalamazoo, "The Light Rays in the Treatment of Cancer;" and Doctor Reuben Petersen, of Ann Arbor, "Retrodisplacements of the Uterus," — with stereopticon views. These papers will be published later.

THE fiftieth annual meeting of the Northeastern District Medical Society of Michigan was held at Lapeer, January 30, 1902. The program for the discussional session included, besides the President's address, papers on "Gall-stones," "Pneumonia," "Appendicitis," "Diphtheria," and "Typhoid Fever." One or more of these papers will be published in the next issue of this journal. The following officers were elected: President, Doctor George S. Ney, of Port Huron; vicepresident, Doctor William Blake, of Lapeer; secretary, Doctor A. Henri Coté, of Port Huron. The next meeting will be held at Mount Clemens.

RECENT PUBLICATIONS.

REVIEWS.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES —VOLUME I.*

THE medical public is by no means unacquainted with the "Reference Handbook of the Medical Sciences," the first edition of the work having been issued fifteen years ago. It naturally went out of date in spite of the publishers' efforts to keep it up to the progress in medicine by the publication of supplementary volumes. The amount of useless or out of date material was recently shown in the reproduction of the work, after the original design, when less than fifty per cent of the original matter was retained. In its new form the profession is again supplied with a thoroughly up-to-date encyclopedia of medicine and allied science. It is a work which is invaluable to writers and readers of medical literature and will serve as the very best basis of a working library for the doctor just out of college.

Volume I teems with complete articles worthy of mention, among them being those on abdomen and abdominal tumors, anesthetics, autopsies and bladder. The contributors to this volume even are too numerous to mention, but they are such as any publisher might be proud of. Several chromolithographs and many half-tone and wood engravings embellish the book.

*Edited by Albert H. Buck, M. D., of New York. William Wood & Company, New York, Publishers.

INTERNATIONAL CLINICS—VOLUME III, ELEVENTH SERIES, 1901.*

In this volume are embraced articles on therapeutics, medicine, neurology, surgery, diseases of the eye and throat and laboratory methods. The introductory article gives an interesting and instructive description of phototheraphy after Finsen's methods. It deserves careful perusal. Routh contributes a valuable paper on the influence of pregnancy on the prognosis and treatment of coexisting acute and chronic disease. There are also several good illustrated clinical lectures on surgical topics, contributing to make this number a valuable one of the series.

*A Quarterly of Clinical Lectures and Prepared Articles, edited by Henry W. Cottell, A. M., M. D., Philadelphia, with the collaboration of several other writers of distinction. J. B. Lippincott Company, Philadelphia, 1901.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY AND THERAPEUTICS.*

We have been familiar with former editions of this work and have become attached to it for the reason that it informs often when other similar works are silent. It is a small volume and yet it serves admirably as a brief reference book as well as for the student in the class room.

*By W. Hale White, M. D.. F. R. C. P., Physician to and Lecturer on Medicine at Guy's Hospital, London; Author of a Textbook of General Therapeutics. Edited by Reynold W. Wilcox, M. A., M. D., LL. D., Professor of Medicine and Therapeutics at the New York Post-Graduate Medical School and Attending Physician to the Hospital; Visiting Physician to Saint Mark's Hospital; President of the American Therapeutic Society; Fellow of the American Academy of Medicine, et cetera. Fifth American Edition, thoroughly revised. Published by P. Blakiston's Son & Company, 1012 Walnut street, Philadelphia, 1901. Price, $3.00 net.

The Physician and Surgeon

A PROFESSIONAL MEDICAL JOURNAL.

VOLUME XXIV. FEBRUARY, 1902. NUMBER II.

ORIGINAL ARTICLES.

MEMOIRS.

NEW VIEWS ON OBSTIPATION, MUCOUS COLITIS, AND INTESTINAL AUTOINTOXICATION, WITH DEMONSTRATIONS.*

BY THOMAS CHARLES MARTIN, M. D., CLEVELAND, OHIO.

PROFESSOR OF PROCTOLOGY IN THE CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS; SURGEON FOR DISEASES OF THE RECTUM IN THE CLEVELAND GENERAL HOSPITAL.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I SHALL direct your attention more particularly to that form of obstipation which is due to hypertrophy of the rectal valve. First, it will be necessary to prove to you that the rectal valve exists, as probably you have heard much testimony to the contrary.

Within the last two weeks there appeared an article in the *New York Medical Journal* which very severely criticizes the author of the views which will be expressed to you, and in support of his criticism the writer of that article refers to the literature of the first half of the last century—which proves the truth of his views to his own satisfaction. The article is characterized by such archaic fragrance that I recommend it to you that you may enjoy it to the utmost. You may misunderstand my meaning to be one of disrespect for the author of that paper. I entertain no such feelings. He is a man who has contributed, perhaps, the most valuable literature to proctology during the second and third quarters of the last century. Whatever we of this generation may accomplish, and however revolutionary the ideas we may promulgate, we should not forget that we build on foundations provided by the generations which have preceded our own.

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* Read before the DETROIT MEDICAL SOCIETY. Stenographically reported and abridged,

Necessary to a perfect understanding of the disease to which I shall call your attention, is a perfect knowledge of the anatomy of the rectum. The rectum has been considered a sort of darkest continent explored largely by quacks and avoided by scientific medical practicians, for the reason that the latter recognized they could not perfectly and satisfactorily examine this organ.

Inflation of the rectum for its inspection was first employed by Van Buren in 1861. His simple method was never very extensively employed. Subsequent to Van Buren, Allingham employed a flexible rubber tube for this purpose and described its use in 1882. In 1887 Cooper and Smith described a similar method employing retractors, such as are used in abdominal wounds to facilitate inspection of the abdomen. In the same year, 1887, Doctor Otis, of Boston, then a student at Leipsic, described a plan for inspection of the rectum which consisted essentially of the same methods. To him, however, belongs the distinction of first describing with any degree of accuracy the topographic appearance of the rectal valve. However, he did not attribute to this fold any histologic element other than that which is found in all other parts of the bowel. He assumes that the function of this structure is *propulsion of the feces.*

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I have here a specimen of rectum which I should like to have you inspect. This specimen was prepared by putting the cadaver in the dorsal posture. First, the abdomen was opened; the lower part of the sigmoid flexure and rectum were washed clean and then tied off. Now the subject was inverted and the anus opened. This was followed by inflation of the rectum. Then this organ was filled with melted paraffin. After the paraffin became hardened the abdomen was reopened and the rectum removed. It was immersed in alcohol, varnished two weeks later, dried, and then cut open with a knife. The paraffin cast was cut through from posterior to anterior walls. This incision cut off the free border of the right rectal valve leaving it suspended on the half opposite its base. This specimen is not normal. It differs from the normal rectum in three features: First, the upper portion is more contracted than is usual in the normal rectum. The second feature which is somewhat abnormal—in degree only—is that of the great depth of the rectal valves. This condition, in this case, was the cause of the patient's death. She died from general peritonitis due to infection, the result of perforation of the sigmoid flexure. Retention of feces being the result of obstruction in the rectum and dilatation above an obstruction being a well-known sequel, one wonders why the upper portion of this rectum is not more dilated. There was a third abnormality in this case, namely, the upper portion of the rectum had no mesentery. The peritoneum was reflected off it, as it is in a lower portion, and bound the organ close to the sacrum, thus interfering with its dilatation.

For a complete ocular inspection of the rectum the patient should be in the knee-chest posture. That man who has no surgical instruments whatever, has no excuse for not seeing the rectum in a state of inflation. In the majority of cases without any instrumental aid he may see as far as the sigmoid flexure. It is necessary to anesthetize the patient. He should be placed in the Sims' posture. The operator should stand at the table with his body resting against the patient's knees, which should be drawn toward him. The thigh should be placed at a right angle to the trunk. With his left hand the physician should grasp the right, or nearer foot of the patient, pass his right arm under him and pull the subject toward him by lifting his hips, thus making a support of the thigh which is nearest the operator. The foot should be grasped so that the thigh may be kept perpendicular. The proper posture being secured and maintained by an assistant, the operator should lubricate his index fingers thoroughly and place them back to back, nail resting against nail. The fingers then should be inserted deeply into the anus and separated. Inflation of the rectum at once ensues and a good view of the ballooned organ is obtained. By this means most of the diseases of the abdominal rectum may be diagnosed, but, as you can readily understand, a man's hands are too full of his patient to admit of his treating the disease he may have discovered.

Without the aid of anesthesia and with the patient in proper posture, by employing a tubular instrument inspection of the rectum may be made without infliction of pain. This instrument (exhibited) is one of the largest diameter of my instruments for the inspection of the rectum.

Before the rectum is examined the anus should by inspected. Before the anus is inspected the ischiorectal space should be subjected to a visual examination. Then this part should be palpated by means of the fingers. The index finger must be introduced and the pelvic floor palpated so as to see whether it is uniformly elastic or not. The patient should be put into the knee-chest or Martin posture and this instrument introduced. It is hardly ever necessary to *introduce* an instrument into the anus or into the rectum. If you will place the instrument against the anus and direct the patient to bear down, fixation of the abdominal wall and descent of the diaphragm will drive the abdominal contents downward, depress the pelvic floor and thus we see the anus climbs on the instrument. The obturator should then be withdrawn. At once under the normal atmospheric pressure, the rectum is inflated. If not, there is a diagnostic significance in the fact that it does not inflate. Should the bowel seem to terminate at a distance varying from one to five inches from the levator ani muscle, this apparent occlusion will probably be due to the presence of the rectal valves. By proper manipulation of the instrument the valve-strait may be found; then another field will come into view. By depressing, under the pressure of the proctoscope, the valve toward its base, still another part of the rectum will be brought into view. You will notice that these apparent occlusions of the rectum are situated upon alternate sides You will notice, also, that the free borders of these valvular partitions are somewhat semilunar in form. You may, however, in some cases, and in a majority of cases in which the rectum is normal, be able to see an elliptic contracted space deep in the rectum. This ellipsis is bounded by the free borders of two rectal valves. As the proctoscope is made to enter more deeply into the rectum you will see an apparent occlusion of the bowel opposite the promontory of the sacrum. Sometimes this feature is opposite the second sacral bone, sometimes nearer the promontory of the sacrum; this point may vary from eight to ten inches from the anus.

Obstipation may be defined as that condition of obstructed defecation due to the presence in the rectum of an organic obstacle to the descent of the feces through it—such obstruction being integral to the rectal wall.

The rectal valves vary in number. In an anatomic research which employed about one hundred and twenty subjects of all ages (the embryo was used, the infant at birth, the child of a few years, the adult of all ages), I found that the average number of persons possessed three rectal valves, that there were more cases in which there were four such valves than there were in which there were but two. I have seen one patient—living—who has seven valves. I have seen but one patient who has but one rectal valve. I never saw a rectum in which the rectal valve was not present, and I would be glad indeed to offer a very considerable pecuniary reward to those who declare that the rectal valve does not exist, for a specimen in which there is no rectal valve. The rectal valve ordinarily spans at its attachment about three-fourths of the circumference of the rectum. The valves are seldom ever placed at a right angle to the axis of the rectum; usually one end is fixed at a point a little higher in the bowel than the other end. The course then to the channel through the rectum is spiral. The valves vary in their relative distance from one to the other very much in different individuals. Under pressure of the test-hook the normal valve may be readily effaced.

These valves divide the rectum into a series of compartments, communicating by elliptic openings which are bounded by the free borders of the valves. The ancient arbitrary division by anatomists of the rectum into three portions, upper, middle and lower, is not as proper, surgically speaking, as would be a method of describing the rectum as having several chambers. The first one is that part of the rectum below the first rectal valve, the second is situated between the first and second valve, and so on, according to the landmarks. If you should describe to a colleague that there is situated within the second rectal chamber a polypoid growth, he would know exactly where to look for it. If you should say that there is a tumor in the second portion he would not know precisely to what part you referred.

There is still another reason why you should refer to the rectum as divided into chambers rather than the several portions, which may be made more apparent to you by calling your attention to some of the anatomic features of the anus. A stricture situated in the external sphincter muscle should not be cut in a posterior direction for the reason that the subsequent muscular contraction will coaptate the wound surfaces and tend to establish the stricture. A stricture situated in the levator ani muscle should not be cut in a posterior direction for the reason that the fibers of the levator ani muscle pull forward and coaptate the lips of the wound. A stricture situated in the levator ani muscle should be cut laterally; the fibers of the muscle should be cut across. This tends to increase the lumen. Stricture situated in the rectal valve which may in some subjects be within two inches of the anus, should not be cut posteriorly for the reason that the rectal valve may be anteriorly situated. The length of the anus varies in the same individual at different periods of his life, varies, too, depending on whether the subject be emaciated or whether he be stout. It varies, also, not a little, in the female at different periods of her life. In the infant the levator ani may be only one-half inch away from the anal verge. In the adult male it may be two or three inches away, but *apparently* the anus may be contributed to in its length by the development of the prostate gland. This statement may, perhaps, admit of some qualification, but it is true enough relatively. In a female after she has passed the climacteric because of atrophy of the structures in this region there is a shortening of the anus. You can readily understand that it is absolutely necessary that we employ a topographic designation of the various lesions which may affect these organs. The treatment is determined as much by the structure affected as by the nature of the disease.

The rectal valve is, perhaps, the most typical of the anatomic valves. It is made up of mucous membrane, fibrous tissue and circular muscular fibers. Sometimes there are valves in the rectum in which you cannot find fibrous tissue. Very seldom will you find any such valves, however. Such valves are only rudimentary in form and do not possess functional importance as does the true rectal valve.

The function of the rectal valve is to retard the too hasty descent of the feces. This was determined by some experiments to which a somewhat emaciated male was frequently subjected. His colon and rectum were filled with water, his hips were lifted high and the water bailed out of the rectum. The rectum now being empty and inflated, and under command of the eye, a hand was placed on the abdomen over the sigmoid flexure. A very violent downward pressure of the hand resulted in the descent of the water, which at first seemed to strike the upper surface of the highest rectal valve and was directed from that valve to the upper surface of the next lower valve when the rectum was completely submerged. I have frequently filled the colon and rectum with water and subsequently bailed out the water and asked the subject to bear down, and had no results whatever follow.

Inspection of a great number of subjects who complained of constipation and those who confessed that they had no difficulty in defecation lead me to the conviction that disease of the rectal valve is one of the conditions found in difficult defecation. In those cases wherein there was a rigid valve, the patients complained of necessity of great effort for passage of solid or semisolid feces. They also complained of a sense of the presence of feces in the rectum after partially successful attempts at defecation. It was seen that in those patients who had no discernible disease and those in which there was a normally elastic rectal valve, that there was no difficulty in defecation. This evidence we did not consider as final *proof* that the difficulty of defecation was due to these appearances; hence, all the cases that complained of difficult defecation, that had any obstruction, were subjected to a course of treatment consisting of knee-chest posture and massage of the valve by means of the sound or a long forceps, the ends of which were wrapped with cotton. About thirty, or more, cases were subjected to this experiment and we learned that all of those cases who gave a history of obstipation of recurrent character were relieved. A few only of those who had suffered from chronic obstipation for a period of years were relieved by such a method of treatment. When it was discovered that in those cases in which there was relief the rectal valve had become elastic under this treatment, it was agreed that division of the valve in those cases which had not been relieved would probably result in their cure. The operation was tried, but not until the technic had been perfected by practice on a fold of leather within a piece of garden hose and subsequently on cadavers.

Before proceeding to give a description of the operation it would perhaps not be out of place to mention some of the organic obstacles to defecation other than disease of the rectal valve.

Other conditions than disease of the rectal valve may cause obstipation. One very commonly met with is that of rectocele. Another which may interfere with defecation is adhesion of the uterus to the anterior rectal wall. Still another condition not so frequently encountered is a band of adhesion which constricts the rectum. Adhesion of the rectum or sigmoid flexure upon itself may, when there is no perceptible contraction of the gut, result in obstipation. In such cases the obstipation will be due to the fixation of a segment of the bowel thus preventing peristalsis.

There is another condition of which I have seen a few illustrations and to which I should like to direct your attention for the reason that there is not any data on the subject: obstipation in women who have had the operation of ventral fixation for the relief of prolapsus of the uterus. I have observed three cases only of this condition, and I am convinced that in these cases it was due to a suspension of the anterior rectal wall—a result of suspension of the uterus to the abdominal wall. One of these three cases recovered. In this case there was a subsequent descent of the uterus.

There are some other conditions that contribute to obstipation, particularly obstipation in infants. The child strains at stool because of the imperfect development of the anatomic factors concerned in defecation. Investigation of some thirty infants and children showed that the normal pelvic outlet varies from one-half inch at the time of birth to one and one-half inches at three or four years of age. The infant's rectum is not anchored to the sacral bone. I may say here that the child under average conditions may be expected to outgrow this difficulty of defecation, but pending the advent of that time the solution of difficult defecation may be found in the solution of the stool.

Obstipation is characterized by straining at stool for the passage of solid feces, by the sense of retention of feces in the rectum, by the retention of gas, and then by the complications of obstruction which are manifested by tenderness in the lower abdominal region, by discharge of mucus in the form of cord-like deposits and by the symptoms of intestinal autointoxication.

Hypertrophy of the rectal valve should be recognized as an initial step in the formation of a stricture. Strictures, as you know, are of two kinds, annular and tubular. A rectal valve which has become inflamed, contracted, infiltrated with lymph and fixed, constitutes annular stricture. Such a condition in several valves, contraction of the walls of the rectum between the valves and fixation in such a state by the organization of plastic lymph, forms the tubular stricture.

The treatment of valvular obstipation consists of instrumental massage of the obstruction by means of a cotton-covered forceps (through the proctoscope) and spraying the inflated rectum with a solution of nitrate of silver, and rectal irrigation by means of saline solutions at a temperature of from 120° to 140°. I should suggest that in case of solutions being used at such a high temperature, the anus should be protected by means of the proctoscope. The patient should be cautioned not to lie on his back, and not to ride in a carriage or street car, for as you know, the direction of the middle hemorrhoidal veins when the patient is in the dorsal posture, is a vertical one to the brim of the pelvis. The veins not being provided with efficient valves, such a posture contributes to the maintenance of congestion in the rectum. In case such methods of treatment prove inefficacious, then the rectal valve should be divided—and herein is applied an idea which has been borrowed from the surgeons' operation for web-finger.

INTRATRACHEAL INJECTIONS IN THE TREATMENT OF BRONCHITIS.

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THE treatment of bronchitis in the majority of instances is a comparatively easy matter, especially of uncomplicated acute and subacute cases. We frequently find that patients, who have suffered from a "cold," instead of recovering completely from their bronchial affection are left with an irritable cough, either dry or accompanied by expectoration of thick tenacious mucus. It is a common experience that some of these cases are rebellious to treatment, that the cough continues in spite of all we do until the advent of warm, dry weather or until the patient seeks a more salubrious climate than is offered by his home surroundings.

After more than two years experience with this method, the writer has found intratracheal injections very efficacious in a very large majority of cases of bronchitis, and believes that a sufficiently large number of cases have been treated to warrant definite conclusions. Before outlining the classes of cases in which this method has been found of especial value, it might be well to give briefly the method that has been used by the author. The solution is injected between the vocal cords by means of a suitably curved canula attached to a syringe. The injection is made while the patient takes a gradual inspiration. The canula is guided by the laryngoscope as in making a laryngeal application. It is essential that the solutions be nonirritating. Pure olive oil is used as a vehicle. One is limited to the use of those drugs that are not too irritating and are soluble in the oil. As experience increases new combinations are found that are of service for this method.

The formula used more than any other is, guaiacol two per cent, camphor-menthol five per cent in olive oil. The solution should be filtered through cotton to remove any sediment, and if properly made it should be clear and of the same color as the pure oil. When cold it will be a little cloudy. The solution should be sterilized by placing it in a hot water bath for about forty minutes. Ichthyol, creosote and iodoform have been used in two per cent solutions, either alone or with camphor-menthol. The injections are usually made daily at first, and as the patient improves every other day. One to two drams are injected at each sitting, though at first it is advisable not to employ more than one dram. The solution should be warmed to body temperature before it is injected. If the throat is irritable a four per cent solution of cocain may be sprayed into the throat before giving the injection. It is very seldom necessary to use cocain after one has become skillful in this method of treatment. It is surprising how little irritation or coughing is caused by the injection. Only rarely is severe coughing produced, and when it does occur it is often due to the unskillful introduction of the fluid.

The writer has found this method valuable in most cases of bronchitis. In the congestive stage of acute bronchitis it has not proven as regularly useful as in the later stages. It is apt to cause coughing, which usually continues only a few minutes, when used during the congestive stage, but the soothing effect and sense of relief which soon follows is very grateful to the patient. As the congestive condition passes off we find great benefit in its daily use by lessening the cough and expectoration. Many patients are entirely relieved by a few injections. A few cases will be cited illustrating the different types of the disease in which I have found the method of value.

There is a class of patients who tell us that they have a "winter cough;" that during the summer they are free from this affliction, but as the inclement weather approaches they take cold, and their cough is apt to persist until the warm, balmy air of spring brings relief to them. These patients with sensitive bronchial mucous membranes are prone to have recurrent bronchitis, which often furnishes a soil for the later development of serious pulmonary diseases. A German tailor applied for treatment in January, 1901, with a history of a dry, irritable cough since early fall. He was a heavy smoker, but drank beer very moderately. He had had a similar cough for several winters. After examination a diagnosis of chronic bronchitis was made. He rapidly improved under the intratracheal injections, and was soon entirely relieved. Since then he has occasionally had a slight cough as a result of a cold, but was relieved by two or three injections.

Chronic bronchitis in alcoholics and acute bronchitis following dissipation, have been successfully relieved by the injections. One patient, a large, florid man, a periodic drinker, suffered from chronic bronchitis with an irritable cough and very tenacious mucus which he found difficult to expectorate. Under the injections he obtained complete relief, but his irresistible periodic desire for liquor made recurrences frequent. Each recurrence would be relieved promptly by a few injections. Other treatment was given for his stomach and general condition following a spree, but he welcomed the injection as giving the promptest relief from his bronchial distress.

Closely allied to the above class there are men who are high livers, heavy smokers and constant, but not necessarily excessive, drinkers. These men frequently have a form of bronchitis that is very unsatisfactorily treated by internal medication. Besides the general treatment and the regulation of their habits, which is so essential in these cases, I have found the injections of especial value in controlling the bronchial element. It lessens the cough, expectoration and dyspnea from which they suffer. A few injections will accomplish more than weeks of internal medication.

After an ordinary bronchitis when the acute symptoms have subsided, but the cough persists, the injections will relieve the difficulty in a few days. One case, recently seen, was cured with two injections. Another patient, a young woman, took cold a short time after her confinement, three months before coming under observation. Her cough persisted despite the usual remedies, including the bromides and codein. She was unable to sleep well at night on account of her coughing. The first injection gave marked relief, and after a few more had been given her cough was entirely cured. She was discharged after two weeks treatment. There has been no recurrence of the cough. In this case all medication was discontinued at the time the injections were begun, so that the cessation of the cough and pain in the chest was undoubtedly due to this treatment.

In chronic bronchitis accompanying asthma and emphysema the relief following the use of the injections is marked, but, of course, not as prompt or as permanent as in the more acute conditions. The dyspnea is lessened and the fullness and sense of pressure is relieved. In many of the cases the sputum was examined. The most constant organisms found were the staphylococcus and the streptococcus. No tubercle bacilli were found in the cases above referred to. Medication, other than the injections, was given in some of the cases, but as a rule it was to meet special indications and not for its effect upon the bronchial mucous membrane. Frequently all medication was stopped except the injections and the results were most satisfactory.

The use of the injection does not in any way interfere with other medication that it may seem advisable to employ. In patients with sensitive stomachs it offers us a means of effective local medication without taxing that organ. The writer has never seen any harm follow the use of this method, and in only very few cases has the coughing been severe. As a rule one must expect coughing in proportion to the congestion of the mucous membrane. In a few cases it is better to wait until the acute congestion has been controlled by other means.

In some patients having a dry, hacking cough the laryngoscope shows the trachea to be involved. It is quite probable that some of the cases which have been classed as bronchitis of the larger tubes should be more properly diagnosed as trachitis. As there is no sharp dividing line between trachitis and bronchitis of the larger tubes, it makes practically but very little difference. The injections are equally efficacious in both.

It is not to be supposed that this treatment is adapted to every case of bronchitis, or that it will entirely replace the older methods, but it does offer a certain and exact method whose range of usefulness will increase as our experience broadens.

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SOME REASONS WHY THERE SHOULD BE A HOSPITAL FOR CONSUMPTIVES IN CONNECTION WITH THE UNIVERSITY HOSPITAL.

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THE establishment of a hospital for tuberculous patients in connection with the hospital of the University of Michigan has frequently been considered, but always, when the matter has been brought up many evidences of lack of information have appeared, regarding the various problems involved. It has seemed desirable to discuss some of these problems.

The subject is of more than local interest. Every physician and every taxpayer in the state should be interested in everything pertaining to the University Hospital. The hospital is a great public charity. It was not founded with that aim in view, and there are some who would have the charitable aspect still less prominent than it is. But, built primarily for teaching, and in response to the demand for a shelter for those who sought aid at the hands of the medical faculty, it does a great deal of good as a secondary result of its special function. Of those who are relieved of distress in its wards, or restored to health, a large porportion are manual laborers and producers, that is, those whose time and health can most readily be estimated in dollars and cents.

The hospital is always crowded to its full capacity. It never has been as large as it should have been, and for the same reason — lack of means — it was constructed not for the ideal care of the sick, but rather for most economically housing a given number. It, therefore, is not well adapted to the care of many special classes of diseases.

Tuberculosis is a disease that preeminently requires special care. Though many investigators are hopefully seeking specific methods of treatment, the general consensus of opinion at present is that each patient must be treated according to his particular needs. To speak in greater detail, the elements most valued in treatment are fresh air, nourishing food, rest and exercise according to each patient's need, and the treatment of symptoms and complications along rational and fairly well understood lines. Not only is there no specific climatic cure for all cases, but it is generally recognized that recovery can occur in any climate, and that in each case the best climate for cure is that in which the patient intends to live. For many tuberculous cases this limits the locality to the patient's own state.

Tuberculous cases in numbers come to the University Hospital for treatment. In spite of many drawbacks, many of these are benefited materially, while almost all are helped more or less. Yet we cannot carry on the treatment as widely and as fully as is desirable, and for a number of reasons. In the first place, because of lack of room. The treatment often requiring many weeks, it is obvious that we cannot keep all who come as long as they should be treated, because they would fill up beds needed for other cases. Moreover, all hospital authorities fear the results of exposing other patients to consumptives. The danger is by no means great, and has unfortunately been much exaggerated. The tuberculous patient is taught first of all to make proper and safe disposition of his sputum as the most certain protection for others and for himself. So successfully is this done that hospitals for tuberculosis are often the places in which tuberculosis is least likely to be acquired by those who have to work among sick people. Yet even with the greatest care it must be admitted that there is some danger for bedridden patients, whose lungs are necessarily weakened by position and whose general resistance is lessened by disease and by prolonged indoor life, to be in an atmosphere that may at times, notwithstanding the greatest care, contain active germs of tuberculosis. Rooms long used by tuberculous patients may become infected in the walls and floors, and should be frequently disinfected. With hospital wards constantly filled, this is impossible.

In other ways than as sources of germ infection tuberculous patients are undesirable in general hospital wards. The unavoidable coughing is often most injurious to other patients who are badly affected by loss of sleep, such as cases of nervous disease, et cetera.

Tuberculosis is best treated in separate institutions. The need for such has long since been felt and acted upon in England and the great improvement in the death rate from tuberculosis there has been ascribed by high authority to these special hospitals. Within the last few years more attention has been paid to the establishment of sanatoria for the treatment of early cases with a view to complete restoration, and in Germany, partly by reason of the laws for the insurance of workmen against disease, these are attaining great perfection.

In America the movement has not been so active, but it has begun, and besides many private institutions, a number of states now have special hospitals, the benefits of which are admitted by all who have examined the work done in them.

In Michigan the matter is still in the stage of agitation, and the most active effort has been in a line that, important as it is, does not coincide with the needs I am now trying to explain.

A bill was introduced at the last (1901) session of the legislature providing for the erection and organization of a hospital for the treatment of incipient cases of tuberculosis. Such an institution is much needed and it is hardly likely that any state can be provided with too many of them if they are properly conducted.

But the care of incipient cases is only a part of the task in the fight against tuberculosis. Only a small proportion of cases are now recognized in the incipient stage. Of this fact every hospital and too many families are well aware, and it will be long before the causes of the difficulty will be removed. In the case of the proposed hospital it will soon be found, when it begins its work, that patients in all stages will apply for treatment. No provision is, so far, made for those in the later stages, but a relaxation of the rule relating to incipient cases would greatly curtail the value of the institution. Even of the cases admitted in the incipient stage not all will permanently recover, and many will become chronic cases.

In Germany, where the methods have been tested longest, and the statistics are fairly extensive, it has been shown that with an average stay of three months in sanatoria, seventy per cent of the incipient cases are able to resume work as recovered. The others, as well as the large number of cases first recognized after the incipient stage, go on for months or years. In this time they often have periods in which they require careful treatment. Symptoms and complications of various kinds incapacitate them, but if these accidents can be treated the patient is often enabled to return again to his vocation. Only too often such stages are not accurately recognized, and still oftener they are improperly treated. This is due chiefly to lack of means to secure the treatment needed. Rest, nourishing and easily digestible food, fresh air, baths or local treatment of some kind cost much more than cough syrup, cod-liver oil and fever mixtures, and are much more valuable in proportion in most cases. The measures necessary can in general be applied only in hospitals, and especially so when cost is a consideration. Moreover all consumptives and other tuberculous patients require training in the details of living so as to best maintain their own health, and increase it, and to avoid infecting others in their homes or workplaces. This, too, can best be done in special hospitals.

Besides the care of cases beyond the incipient stage in times of actual invalidism, special hospitals or wards for consumptives in connection with general hospitals could do much in selecting proper cases for sanatorium treatment. Not infrequently we see patients who seem too ill to be called incipient, yet who rapidly improve under proper care, and, with still further treatment, as in sanatoria, recover completely.

Patients in the latest stages of consumption are often peculiarly in need of hospital treatment, and yet almost all general hospitals rigidly exclude them for want of proper facilities. It is true that such patients often do not wish to go to hospitals, or their families do not wish to send them. The objections depend largely on the lack of special care that such cases formerly encountered. A change of sentiment in this regard, and opportunities for relief, seem quite as well worth the consideration of hygienists and others as any other one thing in connection with tuberculosis. All who have seen consumptives in the last stages of disease, often of many weeks duration, must have been struck by the serious risks involved. The patient needs many things that only a hospital, with experienced physicians and nurses always at hand, can furnish. Too weak, or too indifferent to his surroundings to do otherwise, the patient continually contaminates with his sputum bedding, furniture, clothing and utensils. The room is either excessively hot to overcome chilliness, or swept with drafts to relieve air hunger, and in such rooms members of the family often spend hours. That closely following infection is not often demonstrable, cannot weaken the conviction that the seeds of disease are often laid in such sickrooms.

Well-equipped hospitals for consumptives in all stages, therefore, are highly desirable. It is obvious they are needed not only in one place in a state, but in many places, and particularly in all places where sick people are likely to go, including all cities wherein there are general hospitals. In towns with small hospitals special wards would suffice. One is needed at the University Hospital for the reason stated above. But there are other reasons quite as important, though of a different class. The University Hospital is primarily and essentially a teaching hospital. As part of the state medical school it is necessary that its efficiency be kept up to the highest standard. Tuberculosis being one of the commonest diseases it is obvious that facilities for its practical study must be furnished, so that undergraduates, as well as graduates of a time when tuberculosis was not as well understood as now, may have the fullest opportunities for perfecting themselves in every detail of diagnosis and treatment. A relatively small number of cases in various stages, carefully observed in a properly arranged hospital, can be made much more instructive than a larger number of out patients, imperfectly followed up.

Without a more thorough training than has hitherto been given in most medical schools it is idle to expect the best results from the efforts now being made to restrict tuberculosis. Our statistics will suffer in future, as they have in the past, because of the large number of faulty diagnoses, and progress in treatment will be correspondingly retarded.

Fortunately the best arrangements for teaching do not lessen the efficiency of hospitals in their relation to the sick. Sanatoria for chronic diseases run a serious risk of degenerating into asylums, but in a teaching hospital the many-sided criticism of students and assistants, and the repeated demonstration and investigation of each case prevent routinism.

It is easy to show the reasons why we should have hospitals for tuberculous patients, but not so easy to indicate how they are to be established and maintained. Such institutions can never meet even the most modest expectations unless provision is made for the support of those who meet them. The well-to-do have no trouble in finding what they need. The hoplessly submerged invalid finds a shelter, and often little more, in the almshouse. The working man, clerk, farmer, teacher or skilled mechanic rarely has enough ahead to take the average three months' treatment for incipient tuberculosis, or to take proper treatment for complications. In Germany it has been found necessary, in order to make the best use of the sanatoria, to provide for the support of patients' families. A bill (House Bill No. 153) introduced but not passed at the last session of the legislature provided for many things advocated in this paper. The teaching aspect especially was well considered. But the provision for admission contained the same defect that exists in the present laws for the state aid of the sick and injured.

This aspect of the matter is one that is at present not so important as the chief question. When it is admitted generally that such an institution as I have described is needed the matter of ways and means can soon be settled.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, FEBRUARY 19, 1902.

THE PRESIDENT, DELOS L. PARKER, M. D., IN THE CHAIR.

REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR THOMAS C. MARTIN, Cleveland, Ohio, read a paper entitled "New Views on Obstipation, Mucous Colitis, and Intestinal Autointoxication." (See page 49.)

DOCTOR METCALF: I have been in the habit of thoroughly dilating the rectum even to the sigmoid. Many women patients suffering from pelvic irritations have given a history of constipation and some of them had obstipation. In all of these cases I have performed dilatation, not knowing anything of the arrangement of these valves. The peripheral irritation being removed the secretions again became normal and the peristalsis was restored.

DOCTOR H. O. WALKER: I know of several very prominent rectologists who so severely condemn DOCTOR MARTIN'S position relative to rectal valves that I have been loath to become reconciled thereto until within the past year. DOCTOR PENNINGTON, of Chicago, about a year or more ago, gave at one of our meetings a vivid description of these valves, and he was condemned vigorously by some among our number, but at this time I am fully in accord with the views expressed by DOCTOR MARTIN. He certainly proved to us this afternoon that there can be no question as to the existence of rectal valves. The great mistake in the past has been that examinations have not been thorough. There has been considerable diversity of opinion regarding methods of procedure in examining the rectum and ascertaining exactly what does exist. DOCTOR METCALF speaks of the forcible dilatation that he has resorted to from time to time. I presume most of us have done the same thing; I know I have. Certainly DOCTOR MARTIN has presented a practical paper, one based upon scientific investigation with reference to etiology, symptomatology, physiology and pathology. After what I observed this afternoon, and heretofore, and after what the essayist has demonstrated, I can see no reason why anyone who will take the pains to find them should doubt the existence of rectal valves.

DOCTOR DELOS L. PARKER: The point made by DOCTOR WALKER in regard to the methods of examination pursued by DOCTOR MARTIN is a valuable one. I think that every physician who has had any experience has been disappointed in examining the rectum. A number of years ago, while I was practicing in a smaller town, a country physician said to me one day that he had a peculiar case, one of sciatica. Somehow he gave a large amount of hot water, continuing the liquid some days, and the sciatica rapidly improved under that treatment. That made an impression on me. I met an old doctor since then who said that he had sciatica. I suggested that he try hot water. He met me again later; he had tried the treatment and it had proved successful. Now, since I have seen DOCTOR MARTIN'S method of exploring the rectum, the next case of sciatica I have I intend to explore the rectum to see if I can find an excoriated patch or something of that sort.

DOCTOR MARTIN: The rectal valve was discovered by CHADWICK, and his discoveries were reported in an elaborate paper in 1868, describing what he called a rectal muscle. By means of the finger he discovered a constricting point. He distended the rectum with water and discovered that this band did not present a circular constriction in the bowel. He dissected seven subjects, removing the rectum without dilating it or distending it, and he discovered an appreciable thickening in the wall of the gut in this situation and in several other situations. CHADWICK did not find this muscle in all living subjects examined digitally. He assumed that it being a muscle, and as it did not form a circular constriction, it must be expulsive in its function. The rectal valve cannot be found digitally in all subjects for the reason that it keeps a variable situation; in some cases it is out of reach; in many cases, however, it can be felt, and when it is felt one feels in the mass of relaxed mucous membrane a constrictive band, which in a second grasps the finger and then relaxes, and it is particularly difficult to discover it again by means of the finger. It can only be felt by the finger when the bowel is in a state of collapse. When the bowel is inflated you can see the valves nearly surrounding the rectum. DOCTOR CHADWICK felt it only on one-half of the rectum. A rectal valve may be felt some days in one individual and on other days will not be detected in the same individual, for the reason that the location of the rectal valve varies according to the contraction or relaxation of the rectal muscles. It does not immediately return to the left side when the patient is placed in the dorsal position. It depends on whether the rectum and sigmoid flexure continue distended or not. As the air escapes from it, it tends to the left of the spinal column, for the reason that the mesentery is on that side. In dilatation of the sigmoid flexure, the result of obstruction in the rectum in cases of great distention, the sigmoid flexure will be found on the right side. In 1850 there was a discussion before the French Academy of Medicine as to what was the best position for the artificial anus in cases of hypertrophied anus in an infant. It was argued that the right side was the best because in the infant the sigmoid flexure in a state of distension was on the right side. The question has been asked, did dilatation of the rectum in the cases so treated relieve the difficulty of defecation; do these valves tear readily? The rectal valve, which is a subject of hypertrophy, does not tear easily. In cases of congenital hyperplegia of the rectal valve these rectal valves tear very readily on dilatation. I have seen at least a dozen such cases in which the valve was torn. There is another very important question that is suggested by that variety of case that is most instructing. A child ten years of age. Persistent obstipation with the exception of two periods of three months each during her early childhood. The child had difficult defecation from birth. About the second year the rectum was subjected to divulsion by means of a speculum. Again about the fifth year the child was subjected to another instrumental divulsion. There appeared a period of improvement subsequently, followed by recurrence. Again and again the same treatment was followed without any benefit whatever. When the child was ten years of age she was brought to me, and I saw situated about two inches away from the internal sphincter muscle two hypertrophied rectal valves overlapping. There was a congenital overgrowth on these two valves. The length of the rectum in a child at one or one and one-half years varies from two to three and one-half inches. At ten years of age this child's rectum was about six inches long. The rectal valves were carried above the reach of the speculum, which, when divulsed, relieved her of her obstipation. I undertook to operate on the patient without anesthesia. I introduced the speculum into the rectum; the child cried and the rectum was closed. In twenty or thirty seconds there was an inflation. I had an opportunity, and divulsed these structures. The child had normal restoration. After about three months the obstipation recurred and she was returned to me for further treatment. I anesthetized the patient and found that the valve was more obstructed than it was before I then cut down both valves according to the method which I have described and sewed them up. The child made a perfect recovery, and enjoyed very good health for about five months, when she was brought to me and I was told that she had swallowed a tin whistle.

There appeared some difficulty in defecation at the same time. The mother said she had heard a whistle. Patient recovered; I do not know what became of the whistle. The occurrence of sciatica in cases of obstipation is very frequent. Nearly all the cases that I have of obstipation present three or four symptoms constantly, one strains for the passage of solid feces, another sensation of unrequited desire to stool after partially successful attempt at evacuation, third, aching down the thighs, of course due to rectal congestion. Another symptom that is indicative of the complication is a sense of fullness in the lower abdominal region. Another symptom, mucus in the stools, is usually a sign of complication. I have had some cases which I have failed to cure. I operated on three hypertrophied rectal valves; still the patient suffered from the same symptoms. Invariably I have found that the upper end of the rectum was situated on the left side. Ordinarily I found that there was a band of peritoneum across the sigmoid flexure at that place.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
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AND
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Blood Examination in Enteric Fever.—Winter (*Dublin Journal of the Medical Sciences*, October, 1901) made an extensive study of the blood in forty cases of typhoid fever, and came to the following conclusions, which agree in the main with those of Thayer and Ehrlich:

(1) The number of red blood cells gradually diminishes as the fever progresses, but with the establishment of convalescence, regeneration sets in.

(2) The number of leucocytes is diminished throughout the course of the fever. The rule does not hold good in all cases, but it is so constant that if in a given case of noneruptive fever, the number of leucocytes is normal or subnormal, it would be a strong point in favor of the diagnosis of typhoid fever.

(3) There is a progressive diminution in the percentage of the polymorphonuclear cells which continues into the stage of early convalescence.

(4) The percentage of the large mononuclear cells is increased throughout the whole course of the fever, and continues into the stage of early convalescence.

(5) The percentage of lymphocytes is increased throughout the fever, the increase being most marked in the stage of convalescence.

(6) While the fever lasts the percentage of the eosinophile cells is subnormal, but with the establishment of convalesence it again reaches and may pass the normal level. J. R. A.

A Review of Echinococcus Disease in North America.—Lyon (*American Journal of the Medical Sciences*, January, 1902) reviews the literature of echinococcus disease in the United States and Canada. By combining the statistics of Osler, Sommer and his own, he makes a grand total of two hundred and forty-one cases to July 1, 1901. Of these one hundred and fifty are reported from the United States, seventy-one from Canada, twenty not stated. New York has the largest number of any state; and the German people of any nationality. In Canada a majority of the cases have been reported from Manitoba, among the Icelandic population. He quotes from Ferguson, of Winnepeg, as follows: "First, in 1874, and at different times since, the hydatid disease was brought to Manitoba by the influx of Icelandic immigrants." Out of an Icelandic population of three thousand in Winnepeg Ferguson estimated forty-five to fifty cases. This percentage corresponds very closely with that in Iceland, as given by Jonassen, where one out of every sixty-one persons is affected with hydatid disease. The liver is the seat of election of the parasite, being involved in seventy-three and seven-tenths per cent of the cases.

Stiles states that the disease in the domesticated animals in the United States is increasing. Lyon infers from this fact that the disease is probably on the increase in man. Government statistics, however, seem to prove that at present echinococcus disease is a very rare affection in the native herds and flocks of this country, as well as among the native population. The disease can be exterminated by enforceing proper sanitary regulations at the slaughter houses, as by burning the hydatid cysts found in slaughtered animals. J. R. A.

A New Test for Albumin.—Fuhs (*Medical Record*, March 8, 1902) has added another to our already long list of tests for albumin. It is based upon the fact that albumin is coagulated by carbolic acid. The reagent consists of equal parts of carbolic acid and glycerin. Glycerin is added to prevent the formation of a permanent emulsion between the carbolic acid and the watery element of the urine, and is added in excess so that no possible error can occur from this cause. *Test.*—Two cubic centimeters of carbolic-glycerin solution are poured into a small test-tube, and two cubic centimeters of the filtered urine are added. Mix thoroughly by agitation with a glass rod. If the slightest turbidity is noticeable, the urine is albuminous. It is claimed that the test shows the presence of one-tenth of one per cent of albumin, the degree of turbidity being proportionate to the amount of albumin contained in the urine. J. R. A.

Remarks on the Diagnosis of Pancreatic Disease.—Thayer (*American Medicine*, March 1, 1902) emphasizes the limited nature of our diagnostic resources in disease of the pancreas. The deep position of this viscus, together with the fact that it is covered by neighboring organs, make it impossible to see or feel moderate changes in its structure. Retention of bile shows itself by jaundice, but we have no such means of recognizing retention of the pancreatic juice. The study of the physiology and pathology of the pancreas during recent years has brought us valuable clinical assistance, but we do not possess a diagnostic sign of pancreatic disease. In regard to our means of recognizing gross anatomic lesions, the author says: "The normal pancreas cannot be *satisfactorily* felt even in thin subjects. Enlargements due to inflammatory changes are rarely palpable, owing to tenderness and the consequent tenseness of the abdominal wall. Suppurative pancreatitis is often followed by abscess of the omental bursa, which produces a large immobile tumor filling the left hypochondrium and extending across the epigastrium." J. R. A.

Contribution to the Study of Amebic Dysentery in Children.—Amberg (*Bulletin of Johns Hopkins Hospital*, December, 1901) reports five cases of amebic dysentery which occurred in the children's department of Johns Hopkins dispensary and which were later admitted to Doctor Osler's service. The cases developed during the fall, 1900–1901. Ages from two years nine months to five years.

The disease is rare in children. Until the time of the present paper only six cases have been reported in this country, making eleven cases in all to date.

In two instances the disease developed in members of the same family, both of whom were exposed to the same influences. Two others were playmates, close neighbors, and both drank water from contaminated sources. In one no etiologic history was obtainable. The clinical type was that of moderate intensity as described by Councilmann and Lafleur. The classification of Harris differs from the latter in that he places in the first group the usual form observed in children. In cases that develop a very mild form in which the appetite and general health are good, fever and acceleration of the pulse do not exist worth mentioning, and the number of stools average from two to six in twenty-four hours. In the second group he places cases of moderate severity, wherein the general nutrition is decidedly interfered with. The pulse rate is increased. The temperature shows exacerbations, mostly at night. The stools range from eight to fifteen in twenty-four hours and usually more or less anorexia occurs. All of the author's cases except one, John P., belonged to the first class. This one belonged to the second class.

Prolapsus recti occurred as a complication in two cases. Abscess of the liver, a common complication of dysentery in adults, did not occur in any of Amberg's cases. The author was unable to find more than twelve cases in literature in which this complication occurred in children, and the ameba had not been looked for in any of these.

The feces were seldom found to be acid. In the acid stools the amebæ sometimes continued to move for two or three hours. The diagnosis of the above cases was based on the finding in the stools of motile amebæ containing red blood corpuscles. Charcot-Leyden crystals were present in all of the cases except one, and with one exception eosinophile cells were never absent. Their number varied greatly, being so numerous at times that a whole field contained hardly anything else. The number of the cells was not proportionate to the number of crystals. The author was unable to establish any distinct relationship between the numbers of amebæ, crystals, and eosinophile cells, or between the number of crystals and eosinophile cells in the feces and the number of eosinophile cells in the blood. Neutrophile elements were few in number. In one case nucleated reds were found in the feces and in another case cells were found that looked very much like nucleated red blood corpuscles. In neither of these cases were normoblasts found in the blood.

The agglutination test with the bacillus dysenteriæ Shiga in two cases examined were negative with the dilution one to ten. The bacillus of Shiga was looked for with negative results in two cases. Inoculation of cat's rectum was negative in two cases.

Examination of the blood showed anemia of varying degree in all cases. This was expressed more especially in the deficiency of hemoglobin. Leucocytosis was present in all cases. The count as a rule was not high. When the leucocytosis was more pronounced the polynuclear neutrophile element was increased. An unusually severe secondary anemia was present in some of the cases, showing low red count corresponding hemoglobin, poikilocytoses, polychromatophilia, normoblasts, megalocytes, megaloblasts and myelocytes.

If in the passage of a child Charcot-Leyden crystals are found we have to take into consideration the possibility of amebic dysentery since the amebæ themselves may be found on repeated examination. D. M. C.

Gastric Hyperesthesia and Its Management.—Stockton (*Journal of the American Medical Association*, January 11, 1892) says that the term hyperesthesia is often improperly used; that the truest use of the term is when it is applied to sensory states analogous to cutaneous hyperesthesia.. These patients present symptoms that resemble hyperchlorhydria and yet the conditions are not identical. Examination of gastric chemistry is necessary to differentiate. Hydrochloric acid in these cases is not above normal and is often below. Yet the symptoms are benefited by the use of remedies that tend to lesson the gastric acidity.

Long experience has led the author to the conclusion that there is no fixed standard of activity of the gastric digestion and the amount of hydrochloric acid present in presumably healthy people. People who have hypochlorhydria are frequently benefited by lowering the gastric acidity. The gastric activity depends mostly upon the general strength and activity of an individual at a given time.

The diagnosis of this condition is made by excluding inflammatory conditions, ulcers, erosions, food stagnation, and other conditions that might give rise to the same symptoms. Gastroptosis is a frequent cause of hyperesthesia and cannot be excluded.

The author insists upon the importance of regular examinations of the stomach contents. He says it is a mistake to regard this condition as a disease of the stomach. It is a derangement of the organism of which the stomach condition may be taken as an index.

In considering the treatment, the author gives his ideas on the use of diet, electricity and hydrotherapy. D. M. C.

SURGERY.

By HENRY O. WALKER, M. D., Detroit, Michigan.
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The Pathologic and Therapeutic Aspects of the Effects of the Roentgen Rays.—Beck (*New York Medical Record*, January 18, 1902) writes a very interesting paper on this subject based on his experience with the use of the rays for photographic and therapeutic purposes. He considers the effect of the rays upon the skin and compares it with ordinary burns, noting that the most characteristic difference between them is the period of time (a latent stage) between the application and the appearance of the burn. The skin becomes hyperemic and passes through various changes until it is dark brown and scaly. The tissues recover slowly with or without pigmentation, a burn of the first degree. The bullous form of burn has the same latent period as burns of the first degree, but with greater reaction followed by cicatrization and pigmentation. The necrotic form has a long latent period, is a long time recovering, with permanent changes in the tissues.

The history of patients treated would indicate that blond individuals are predisposed to tissue change by the rays. Children and weak patients show a more intense reaction and certain parts of the body are more susceptible than others.

Experiments on animals show destruction of red blood corpuscles, also disintegration of tissues forming albuminose and peptones. In the necrotic form the absorption of products of disintegration produces toxemia.

The rays have antiseptic properties, all kinds of infusoria perishing after six hours of irradiation. It may also counteract the proliferation of cells.

The application for therapeutic purposes must be made with great care. The patient should be warned of the danger of burning and allowed to assume his part of the risk. The first exposure should be short (five minutes). The second should be made one week after the first. The third may be made one week later. If no signs of inflammation are seen after this application, longer exposures or shorter intervals may be the rule. Exposures may. however, last forty-five minutes and be repeated daily in desperate cases. The tube should be placed as near to the patient as possible (four inches). Tubes of low vacuum are generally used as the rays of hard tubes more strongly affect the deeper tissues. The surrounding parts should be protected during irradiation by lead plates or tinfoil.

The future therapeutic application will be for the removal of hairs, diminishing new cell growths, and destroying certain infections. C. G. D.

The Treatment of Malignant Growths by the X-Ray, with a Provisional Report of Cases Under Treatment.—Morton (*New York Medical Record*, March 8, 1902) gives a report of eight cases with a brief history of each case, the method of treatment and the present results. Three were sarcoma, three were carcinoma of the breast with return of the disease after operation, one carcinoma of the stomach, and one epithelioma of the face. The time since treatment is too short to assert that the cure is complete though the results published will warrant others in vigorously pushing this treatment in inoperable cases.

The most remarkable point in the treatment is the disappearance of pain immediately and completely, acting in many instances "as quickly as a hypodermatic injection of morphia." He believes this is due to the benumbing of the nerves of sensation and is followed by innervation of the new growth. The process not only affects the nerves but extends to the protoplasm of all the tissues "a paralysis of protoplasmic activity" affecting new cells more quickly than old ones. This is followed in time by a retrogression of cells.

Superficial processes not covered by skin are most easily reached, the action being almost caustic. Carcinomatous growths covered by skin may be made to disappear totally, the pain in these growths being relieved just as promptly as in the superficial. The dosage remains a matter of great importance as the application is sometimes followed by severe burns. Soft or hard tubes may be used according to the case.

Morton's conclusions are briefly as follows: Reduction in size of the new growth; establishment of the process of repair; removal of odor if present; cessation of discharge; softening and disappearance of lymphatic nodes quite often distant from the seat of disease; removal of the cachectic color and appearance of the skin; improvement in general health; cure of a certain number of malignant growths. C. G. D.

GYNECOLOGY.

By REUBEN PETERSON, A. B., M. D., Ann Arbor, Michigan.
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Analysis of One Hundred Cases of Uterine Fibromyoma.—No one will question the truth of C. J. Cullingworth's remark in his article appearing in the initial number of the new *Journal of Obstetrics and Gynecology* (January, 1902). He says that we are in need of a more accurate knowledge than we now possess of the life history of uterine fibromyoma, and that such knowledge can be acquired only by the observing and recording under favorable conditions of a considerable number of cases. With this end in view he has attempted an analysis of one hundred cases of such tumors, wherein they have been actually seen, handled and laid open, and their relations to the uterus and to other parts and organs recorded carefully. On account of the process of selection employed, the series consists largely of cases of unusual gravity and the proportion of serious complications cannot be taken as representing the proportion among fibromyomata in general.

The cases cover a period of ten years, 1892 to 1901, and comprise eighty-nine abdominal hysterectomies, nine abdominal myomectomies, one Caesarean section and one exploratory incision. In forty-six cases the tumors were healthy, in two cases unusually vascular and diffused through the uterine muscle. In fifty-two cases, or rather more than one-half of the whole series, the tumors had undergone some form of secondary degenerative change. These secondary changes were:

Edematous and myxomatous		27
Myxosarcomatous		1
Cystic or fibrocystic		5
Calcareous		1
Necrotic, subdivided into		
(a) Necrobiotic	15	18
(b) Infected	3	
		52

Amongst the complications may be mentioned:
Serious peritonitic adhesions in 12 cases.
Hydrosalpinx in 5 cases.
Dilated ureters and hydronephrosis in 1 case.
Dilated ureters, hydronephrosis, suppurative pyelitis in both kidneys, with two phosphatic calculi and numerous abscesses in right kidney in 1 case.
Ectopic gestation in 1 case.
Twisted pedicle in 2 cases.

Pain is recorded as having been a noteworthy feature in thirty-eight cases. Of these ten were cases in which the tumor was simply necrotic, two occurred in tumors which were infected as well as necrotic, three were in cystic tumors, eight were in cases wherein the tumors were softened by so-called edema, and one was in a case of myxosarcoma. In five cases the pain was accounted for by conditions outside the uterus, like serious adhesions, hydrosalpinx, ovarian disease, et cetera, while in the remaining eleven no special cause could be found for the pain either in the state of the tumor itself or in the conditions around it. Pain, therefore, was a marked symptom in two-thirds of the necrotic cases, in three-fifths of the cystic cases and in nearly one-third of the edematous cases. Pain, however, was noted in about one-third of the uncomplicated cases, those, in short, in which there was nothing to account for it.

There was a preponderance of cases between the ages of thirty-five and forty-five inclusive. One patient was only twenty-three while the oldest patient was sixty-one.

Nervous Disturbance Incident to the Menstrual Epoch.—Viallon (*Annales de Gynécologie et D'Obstétrique*, February, 1902) has been led to investigate the subject of mental and convulsive troubles either induced or augmented by menstruation. His interest in the subject was aroused by certain observations made in the case of an insane patient who at each menstrual period had a slight rise of temperature and suffered from gastrointestinal disturbances. Elevation of temperature during menstruation has already been noted by Stoltz, Henning and Campbell-Clark, although most writers have either failed to mention the subject or denied its existence. Viallon is of the opinion that only exceptionally can menstruation give rise to increase of temperature and then only as a result of gastrointestinal disorders. In addition, he reports cases illustrative of the effect of gastric irritation at the menstrual period upon the insane and those subject to epileptic attacks. Among such patients it is common to find, during the menstrual period, scanty urinary secretion and retention of the urine is not uncommon. Especially in the case of epileptics is the menstrual epoch a most critical period, as it is commonly known that a great number of such patients have their attacks only at those periods. There is certainly a relation between the intensity of the gastric phenomena and the number of the attacks. The gastrointestinal disturbances may either precede or follow the attacks. He concludes as follows: (1) The toxic state brought about by menstruation arises from various functional derangements, usually either gastrointestinal or renal; (2) under these conditions menstruation may be accompanied by (a) variations in body temperature; (b) psychic disturbances shown usually by mental confusion; (c) convulsive attacks occurring among epileptics and general paralytics.

OBSTETRICS.

By THOMAS STONE BURR, A. B., M. D., Ann Arbor, Michigan.
DEMONSTRATOR OF OBSTETRICS AND GYNECOLOGY IN THE UNIVERSITY OF MICHIGAN.

Spinal Anesthesia in Obstetrics.—Lea (*Journal of Obstetrics and Gynecology*, January, 1902) presents a review of spinal anesthesia, in a critical essay entitled "Anesthesia by Subarachnoid Injection of Cocain in the Lumbar Region; Its Uses in Gynecology and Obstetrics." After a comprehensive history of spinal anesthesia, Lea discusses its application to obstetric procedure. The first observations along this line were made by Kreiss (*Centralblatt für Gynäk.*, Number XXVIII, 1900), who reported six cases in which delivery was effected without pain. Doléris and Dupaigne in France, and Marx in America followed, the last reporting one hundred cases. The technique is the same as that employed by Tuffier, of Paris, one centimeter of a two per cent solution of cocain (one-fifth grain) being injected in the interval between the fourth and fifth lumbar vertebræ. Analgesia is usually complete for all labor pains, and for obstetric operations. Porak reports delivery by forceps, craniotomy and symphysiotomy under spinal anesthesia, and Doléris and Sinclair report Caesarean sections. In the latter the patients experienced no pain or shock, and the uterus contracted well. There was no cardiac depression.

Analgesia persists for from one and one-half to two hours. In rare cases it may continue for four hours. Marx has maintained analgesia for eight hours, by repeated injections. Repeated injections are not free from risk of toxic effects. On account of the short duration of analgesia, Marx makes the injection when the os is two-thirds dilated in multiparæ, and completely dilated in primiparæ. The injection is usually followed by cramps, tremor of the lower limbs, nausea, headache and rise of temperature. These symptoms usually subside rapidly, but may persist for several days. They are relieved by secondary puncture, and withdrawal of spinal fluid

The influence of cocain upon uterine contraction seems a disputed point. Dupaigne thinks the contractions are increased in force and frequency, and the duration of labor shortened after cocain. Doléris insists upon the "oxytocic" action of the drug. He says that the contractions increase in force and frequency, dilatation of the cervix is more rapid, the second stage is shortened, retraction after delivery is more complete, and the risk of hemorrhage is lessened. In uterine inertia he has seen one-third of a grain of cocain bring on vigorous pains. He also thinks cocain will bring about uterine contractions before term, and cites cases. In a case of placenta previa uterine contraction and cessation of hemorrhage followed cocain injections even before the membranes ruptured. Porak, Ronville and Puech have observed cases in which the force of contraction was lessened by cocain. Kreiss in three out of six, and Marx in sixteen out of forty cases, in which cocain was employed were obliged to deliver with forceps. Ehrenfest observes that in cases terminated by artificial means, the patient, being unconscious of the uterine contraction, is unable to aid herself at the proper time by use of the abdominal muscles, although the latter are under control. If the percentage of artificial deliveries is greater with than without cocain, the use of the method would be contraindicated.

As to the risks of spinal anethesia, Marx in over sixty cases and Doléris in seventy-eight cases have experienced no accident or bad effect, and no deaths from its use have been recorded up to the present time. Goldan, of New York, observed alarming symptoms in a primipara, after injecting two-fifths of a grain. The respirations became rapid - sixty per minute, and the pulse 140, with extreme pallor. The patient recovered, though the headache was intense for forty-eight hours. Marx thinks hyoscin hydrobromate (one hundredth grain) has a specific effect, relieving headache and other symptoms following cocain injection.

If the dose of one centimeter of a two per cent solution (one-fifth grain) is not exceeded the fetus is unaffected. When larger doses are given the fetal heart is slowed, and the child may be born in an asphyxiated condition. In cases wherein contractions are powerfully stimulated the fetal life may be endangered. No death of the fetus has been traced definitely to cocain as yet, however. The involution of the uterus is perhaps stimulated, and the establishment of lactation, and nutrition of the child are not impaired after spinal anesthesia.

Guemot gives the following contraindications to the use of cocain in labor: (1) Disease of the heart or great vessels; (2) chronic disease of the respiratory organs; (3) chronic affections of the central nervous system; (4) absence of facilities for securing complete asepsis. He cites the following as conditions suitable for the use of the drug: (1) Obstetric operations not necessitating the introduction of the hand into the uterus; (2) excessive pain; (3) prolonged labor due to feebler contractions of the uterus, in the absence of obstructions; (4) conditions tending to hemorrhage, for example, inertia or placenta previa.

Puech, in reviewing the subject, considers the weight of evidence in favor of the general anesthetics. Cocain cannot produce analgesia throughout labor. Its use requires special apparatus, facilities and skill; while the risks of toxic effect, and of infection must not be overlooked. [Under cocain the birth of the head cannot be as easily controlled as under chloroform, and the relaxation obtained by chloroform is wanting.]

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., Detroit, Michigan.
PROFESSOR OF PEDIATRICS IN THE MICHIGAN COLLEGE OF MEDICINE AND SURGERY.

Aspiration in Children.—Powell (*Post-Graduate*, February, 1902) says "aspiration is frequently satisfactory and is followed by recovery, if it is made at a time when the cavity is full of perfectly sterile serum," and if the conditions recur, he advises making a free opening. If he aspirates and finds pus, he operates at once. If pus is thin and not abundant in fibrin, a small opening will answer, and he advises resection of three-fourths of an inch of the rib and washing out the pleural cavity with a strong solution of carbolic acid, using about a dram to the ounce. If the pyogenic membrane is thick, he makes a larger opening and resects more of two or three ribs, so as to make the chest conform to the lung, care being taken with the use of the carbolic solution by watching the effect on the urine.

Dilatation of the Heart—Smith (*Pediatrics*, January, 1902) says in childhood the heart may be said to dilate with exceptional ease, and the dilatation may be found quite apart from valvular disease. It may be due to blood pressure in a flabby, ill-nourished or degenerate heart. Dilatation often occurs in anemic, weakly children who overtax their strength in violent games. Rapid growth with poor blood may give rise to the same condition. In nephritis the pressure is heightened in the glomeruli and may give rise to dilatation of the left side of the heart. So also in bronchopneumonia, the right ventricle may show signs of dilatation. It is very apt to occur in infectious fevers and is especially common and serious in diphtheria and acute rheumatism, being an additional element of danger in these diseases. Many of the above conditions may be improved and therewith the heart is restored to normal size. He advises watching the limit of the heart's dullness in slight as well as severe cases, keeping the child at rest, avoiding all exercise and exertion, enforcing the recumbent position, and restricting the diet, resorting to iron and strychnin and alcohol when the cases demand.

Treatment of Congenital Hip Displacements. — Reeves (*Lancet*), in writing of the treatment of congenital hip displacements, holds the view that no operation can remedy the malformation. He has not been able to satisfy himself that any cutting procedure — except perhaps tenotomy of the muscles attached to the great trochanter—offers anything like a permanent practical cure. He saw three cases submitted to the open operation, none of which showed the slightest improvement. He recommends treatment by the ambulatory method, that is, reposition without cutting. It consists of first reducing as far as possible the femoral head into the deficient acetabulum by the methods of Bigelow and Paci, and while the limb is kept in place, the author's extension instrument, consisting of a pelvic band and a double iron, with joints at the hip and knee, is applied. The leg is extended and abducted and a high-soled boot worn on the sound limb. He does not profess to succeed in reducing all cases into the rudimentary acetabulum, but contents himself if he thereby diminishes the shortening and lordosis and improves the walk.

Indications of Tuberculosis in Children.—Crandal (*Archives of Pediatrics.* January, 1902), in an article upon the "Malnutrition of Tuberculosis in Children," summarizes his thoughts as follows:

(1) Wasting, anemia, and other evidences of malnutrition, are constant accompaniments of tuberculosis in children.

(2) These symptoms may occur in infants long before local disease can be detected and occasionally no local signs whatever are manifest before death.

(3) In infants, tuberculosis shows a special tendency to be disseminated or to conceal itself in the deep tissues, as the lymph nodes. The disease may then run a course identical with simple marasmus.

(4) In some cases a period of anemia and wasting is followed by a stage of irregular fever, after which local lesions appear, usually in the lungs.

(5) In other cases tuberculosis in chidren begins with well-marked local manifestations, particularly pneumonia. In these, evidences of malnutrition appear promptly and are usually progressive.

(6) The anemia of tuberculosis, whether it appears before or after the occurrence of other symptoms, is usually a simple anemia and presents nothing characteristic.

(7) A diagnosis of tuberculosis cannot be made alone from the character of the anemia or the malnutrition. However, persistent and increasing malnutrition in a child without discoverable cause is always suggestive of tuberculosis.

(8) Anemia in adolescents should receive prompt and active attention, for it vastly increases the danger of tubercular invasion, which is particularly common at that period of life.

OPHTHALMOLOGY.

BY WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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Foreign Bodies in the Eye.—Sweet (*Philadelphia Medical Journal*, February 1, 1902) gives a summary of sixty-one cases of foreign bodies in the eye located by the Roentgen rays. So far as the findings in the cases given could be verified by the extraction of the foreign body or after enucleation, the substance was in every instance situated at the spot indicated by the radiographs. The conclusions drawn are as follows:

(1) The Roentgen rays offer the most certain method of detecting and locating foreign bodies in the eye.

(2) The position of the foreign body should be determined in all cases before magnet extraction is attempted.

(3) Early extraction offers the best chance of saving the eye.

The more extended use in the future of the largest magnet in cases of steel in the vitreous chamber to draw the metal to an opening in the sclera, after its position has been accurately determined, will probably achieve better visual results than have been obtained in the past, with the small magnet introduced into the vitreous.

(5) Iron or steel which has remained in the eyeball until a fibrocellular covering envelops it cannot be dislodged, but the magnet extraction with forceps, and the employment of a normal salt solution to replace any vitreous lost, has resulted in several instances in eyeballs of good appearance, and should be attempted. Forceps extractions must be employed when the body is of copper or glass.

(6) Extraction is a safe operation, and under proper precautions, is free from the dangers of panophthalmitis or meningitis.

Relapsing Traumatic Bullous Keratitis.—de Schweinitz (*Ophthalmic Record*, February, 1902) says that at longer or shorter periods after the apparent healing of trivial corneal abrasions, the affected eye may become the seat of irritative phenomena quite out of proportion to the original injury. These phenomena may appear in the form of:

(1) Relapsing bullous (or vesicular) keratitis, originally described by Hansen Grut in 1872.

(2) Recurring erosions of the cornea, first recorded by Van Arlt in 1875.

(3) Recidivating traumatic keratalgia, a name given to the affection in 1888 by Grandcliment, who believed that it had not been previously described.

These manifestations represent analogous if not identical lesions. In general terms the symptoms are the following: Some time, several weeks or several months, after an abrasion of the cornea by a finger nail, a twig, or a similar object, the patient experiences almost always on awakening in the morning some difficulty in opening the eye, followed when the lid is raised, by marked foreign-body sensation. Each movement of the lid is painful, and the "attack" continues from one-half to several hours, when, usually by afternoon, the symptoms subside and the eye is again apparently normal. These attacks may recur at short or long intervals, for weeks, months, and even years. Careful examination during the continuance of the irritative signs just described will reveal on the cornea a small ruptured vesicle, or a larger blister or bulla, or sometimes simply an erosion of the superficial epithelium without indications of vesicle or bulla. Occasionally the only lesion to be detected is the scar or macula caused by the original injury, without loss of epithelium.

Doctor de Schweinitz collected reports of ninety-seven cases in ninety thousand patients, and reports three of his own in twelve thousand, making one hundred cases in one hundred and two thousand patients.

The treatment of the three cases reported by the author did not differ from that which has been recommended by all authors who have written upon this subject, namely, some form of cauterization of the erosion, massage with yellow oxid of mercury and during the proper stage an occlusion bandage, except in one particular, namely, the apparent value of holocain in one case.

With regard to the pathology of this affection, as Praun states, Fuchs makes the plausible explanation that the epithelium over the original spot of injury is not regenerated in a normal manner; so that if the occasion arises it can be readily lifted up from its position probably in the form of a bleb or vesicle, which collapses, and when the patient is examined the erosion alone is visible. Stood thinks, owing to the injury, a certain extent of the epithelium is torn away from its attachments and the anterior portion of Bowman's membrane is probably bruised, so that the new-formed epithelial cells which spring forward at the borders of the defect are unable to form the normal attachment to the underlying tissue. During the night the conjunctiva of the closed lid comes in contact with this epithelium and when the lid is opened the poorly attached epithelium is torn away and the fine nerve endings are broken. Following this a transudation from the parenchyma of the cornea finds its way through the pores of the lamina elestica which represent the nerve canals, and this produces the bleb-like formation.

NEUROLOGY.

By AUGUSTUS WRIGHT IVES, M. D., DETROIT, MICHIGAN.
PROFESSOR OF PHYSIOLOGY AND ASSISTANT IN NEUROLOGY AND PSYCHOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

Degeneracy and Arrested Development.—Bondurant (*Mobile Medical and Surgical Journal*, March, 1902) has presented the second installment of his paper on "Insanity." This also is pregnant with new ideas forcibly expressed. The author speaks of degeneracy as a manifestation of arrested development—"a failure wholly or in part to rise to the normal racial type." Illustrations of this abound in every community.

We all would of course place idiots, imbeciles, and paranoiacs, in this class, but have we generally included most beggars, foundlings, paupers, tramps, et cetera? Monad, a French philanthropist, made arrangements whereby he could furnish work to all able-bodied men who asked for it. In a given time seven hundred and twenty-seven applied. They were told to call again in a few hours when a letter would be given each, insuring him work at the prevailing wages of four francs a day. Four hundred and fifteen never returned for the letter. Of the three hundred and twelve who took the letter, one hundred and thirty-five never presented it. One hundred and fifty-six worked half a day and left. At the end of three days, eighteen, or about two and five-tenths per cent were still at work. This rather conclusively shows that the wrong conditions are internal not external, and this wrong condition is degeneracy.

A Complicated Case of Bell's Palsy.—Chadbourne (*Cleveland Medical Journal*) reports a rather remarkable case of Bell's palsy complicated with hysteric hemiparesis and hemianesthesia in a girl of seventeen. The facial paralysis antedated by about one week, and lasted months after the hysteric symptoms. A peculiar feature of the case was the temperature which ranged between 101° and 103° throughout the attack, which is contrary to the general experience and the text-books on the subject, but, as the author says, "There is no good reason why the center for temperature should not be affected as well as those for motion and sensation," especially as so little is really *known* regarding the cause of fever.

Diagnostic Signs of Tabes Dorsalis.—Meirowitz (*New York Post-Graduate*, February, 1902) recites three interesting cases of tabes dorsalis that were sent to him by general practicians each of whom had failed to recognize the disease. The first patient brought a note from his physician saying that the bearer was "very anemic and nervous." Another patient had been troubled for fifteen years with periodic attacks of pain in the epigastrium accompanied by vomiting. He had been treated for calculi, and had made all preparations for an exploratory laparotomy, when, luckily for him, his plans were interfered with. The other patient, a street car conductor, was being treated for general muscular weakness.

The first thing that attracted Doctor Meirowitz's attention in each case was the small immobile pupils, responding to focusing slightly but not at all to distance—the Argyll-Robertson pupil. The knee jerks in each case were found wanting, while the Romberg symptom was present. These symptoms justified the diagnosis of locomotor ataxia.

The author commenced his paper by saying "It seems superfluous to remark that the assiduous cultivation of the habit of observation is highly essential to the physician's success in directly diagnosticating diseased states; particularly in the field of nervous diseases, is close observation necessary, for often an apparently trifling sign, easily overlooked, is the first clue which may render the diagnosis easy." It is the *simplest* signs that are frequently overlooked.

Self-Control and Emotional Insanity. — Marshall (*American Practitioner and News*) believes that proper training of the infant from birth in the matter of self-control would be effective in greatly lessening the number of emotionally insane. He says: "I believe the chief cause of the failure of any animal to attain its greatest usefulness is the lack of an appreciation of its own responsibility. "Don't care" is a liar and is the corrupter of all the higher instincts. Our duty in the lying-in room should impel us to instruct the young mother in the fact that the child gets nothing in this world but heritage and rearing." The number of spoiled children, a nuisance to all, through want of training in obedience and self-control, are doing something more than annoy all around them; they are forming a groundwork, or etiology for psychoses of various sorts in later life.

THERAPEUTICS.

BY DELOS LEONARD PARKER, PH. B., M. D., DETROIT, MICHIGAN.
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Of How Much Benefit is Alcohol as a Medicine?—Rooney (*Cincinnati Lancet-Clinic*, November 2, 1901) declares that modern scientific study shows that alcohol possesses "no value as a medicine, or, if any at all, simply as a narcotic, and never as a stimulant, tonic or food." She further makes mention of several hospitals wherein she affirms no alcohol is used, and says the death rate in each of them is less than it is in others near them in which alcohol is considered a useful therapeutic agent. She says also that alcohol "diminishes functional activity of nerve structures, principally those of respiration and circulation and prevents the internal distribution of oxygen. * * * Its value as a food is utterly fallacious. The only claim that can be given it is that a certain amount can be oxidized in the body and yield its equivalent in energy, but it has been proven here that while it is a force-giver it is also a force-liberator." The article concludes with these words: "Upon physicians of this generation and the coming ones much depends as to whether or not the drink traffic is to be suppressed."

The Present Status of Serum Therapy.—Mitchell (*Cincinnati Lancet-Clinic*, December 21, 1901) states concerning this subject that the following results are proven by experiment or experience:

"First and foremost, we have obtained a cure for one of the most malignant diseases which afflict humanity, a disease which in all civilized communities has yearly carried off multitudes of children, and which in most large cities stands second or third in its mortality rate. Under certain circumstances it is also a preventive.

Second, it has given us the ground-work for a rational explanation of that hitherto absolutely dark subject, immunity, and in doing this opens up a field of which we have as yet touched only the borders.

Third, in a considerable number of diseases the possibility of conferring immunity upon animals and of curing them after infection has been established.

Fourth, it has been established that with proper precautions many antitoxic sera can be used upon man without harmful results.

Fifth, in several diseases besides diphtheria a certain degree of success has attended the therapeutic application of the sera, for example, in tetanus, in streptococcus infection, in bubonic plague, in cholera, yellow fever, and probably in pneumonia."

Mitchell laments the fact that there are still a few physicians who, for one reason or another, oppose the use of antidiphtheric serum. He says, however, "without exception, every man opposing it with whom I have personally conversed, has either had an extremely limited experience, or has used it so late in the disease that good results could not be expected, or has used it in too small doses." To the above opponents of the remedy he also joins those who are so constituted mentally that they must be on the "off side" of every question. He says these latter would argue against the multiplication table if they could get some notoriety by so doing.

Mitchell's rule of dosage for antidiphtheric serum is as follows: "In children under one year, five hundred to one thousand units in mild cases, one thousand to two thousand in severe cases, repeated with five hundred to one thousand in twelve hours if improvement is not marked. In patients over one year from two to six thousands units for the first dose, according to the age and the severity of the case." He says experiments have shown that the antitoxin is efficient when introduced into the system by the stomach or rectum, but that the subcutaneous route is the one that is the most satisfactory. In tetanus Mitchell finds the use of an antitoxin far from satisfactory. He attributes this result to the circumstance that by the time tetanus has developed the nerve cells are apt to have become permanently damaged. He considers the prophylactic use of tetanus antitoxin a promising field for its application.

In pneumonia the serum treatment is still *sub judice*.

"The reports on antistreptococcic serum are rather conflicting. In the treatment of erysipelas it has frequently been strikingly successful. It should be given a trial in severe cases. In puerperal injections there is occasionally striking improvement immediately following its use, but the aggregate results do not seem to have been materially improved. Most cases of puerperal infection are not due to streptococci, but to staphylococci. Others have a double infection, and we should in these cases not expect cure from the antistreptococcic serum.

"The reports of serum treatment of tuberculosis are too vague to be here profitably considered. Tuberculosis differs in so many particulars from other infectious diseases that it is doubtful if a curative serum will be found. Plague, glanders and cholera have all been treated with an encouraging degree of success."

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
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Vaccination in the Past. — Earle (*Chicago Record*) recently contributed an interesting article on "American Life a Century Ago," in which the ravages of smallpox and the triumphs of vaccination are interestingly portrayed.

The newspapers of the early century show how much excitement there was over the introduction of vaccination as a protection against smallpox. That disease was a horrible and universal scourge; far more people had suffered from it either through contagion or inoculation than had not had it. The latter class lived in daily terror of disfigurement and death. The words "pock-marked," "pock-fretten," "pock-broken," "pock-pitted," appeared in nearly every personal description of the eighteenth century. It had brought not only death but business disaster and ruin to the colonists. New England had been devastated seven times by the disease. Inoculation had controlled it, but there seemed to be no hope of exterminating it. The first public notice of vaccination was in 1799.

In 1800 Doctor Waterhouse, of Cambridge, Massachusetts, published a pamphlet on "The Prospect of Exterminating the Smallpox," et cetera. He at once vaccinated three of his children and four of his servants, and the boldness of his faith inspired confidence. He issued funny little tickets entitling persons to "One Inoculation." He received the virus from England in quill points and in infected thread.

It is interesting to see how quickly and with what intelligence people accepted vaccination. Doctor Waterhouse sent several supplies of lymph to President Jefferson, who, with his son-in-law, vaccinated over two hundred of their Virginia neighbors and servants. Whole towns turned out to be vaccinated, a hundred persons a day. Circulars of invitation were read in the pulpit. As proof was desired by some, twelve children who had been successfully vaccinated were afterward inoculated with smallpox, and a public-spirted gentleman of Milton, Mr. Horton, gave his house as a hospital. The charge of twelve healthy children for two weeks must have kept him busy. At the close the children were discharged, none of them having taken the smallpox, and each was presented with a certificate, of which the following is a copy:

"JOSHUA BRIGGS: YOU ARE HEREBY discharged from the Hospital, where you and eleven more appointed for that purpose have offered to all men by the test of Small Pox Inoculation a convincing proof of the never-failing power of that mild preventive, the Cow Pox.

WHILST you REMAIN a Living Token of Mercy, your mouth will delight to Testify your Gratitude for a Blessing Great as it is Singular of its kind, so that the hearts of men may unite with yours in praise to the Almighty Giver.

OLIVER HOUGHTON,
AMOS HOLBROOK, Chairman Committee of Vaccination.
Physician in Charge.
October 25, 1809.

This seemed so decisive that an annual inoculation was ordered in June, the time of which should be posted in public places, warned from house to house, and advertised in the newspapers, and to which strangers were invited. Due and significant gratitude to God for "so singular and admirable a blessing" was shown by permitting the vaccination to take place in the meeting house. The result of all this was a law in Massachusetts enforcing vaccination and the loathsome pest of smallpox never again had a foothold in the State until after the statute was, unfortunately, repealed in 1836.

Medical Inspection of Schools.—A daily inspection of school children is one of the reforms which will greatly restrict the spread of various communicable diseases. The plan has been successfully tried in various large cities including Boston, New York, Chicago, and Cincinnati. The system became vogue in Detroit, Monday, February 3. A daily medical inspection of two classes of children was undertaken. (1) Such as have been absent two or more consecutive days; and (2) such as presented suspicious symptoms to the teacher. It is to be hoped that the plan, after it has proven to be a valuable aid to this branch of public health work, will be adopted by various other cities in the state.

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN.
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Chronic Hyperplastic Tuberculosis of the Intestine.—Lartigau (*Journal of Experimental Medicine*, November 29, 1901). In 1891 Hartman and Pilliet made the first careful study of a peculiar form of intestinal tuberculosis which was characterized by the extensive formation of fibrous or granulation tissue in and around the intestinal wall, giving rise to diffuse or nodular thickenings closely resembling malignant neoplasms in their gross appearances. A number of cases had been reported before this time of the removal of portions of the intestine supposed to be carcinomatous, but which on microscopical examination were found to be tuberculous. The interest aroused by the publication of the article by Hartman and Pilliet led during the last decade to the report of numerous cases of this condition. In 1898 Conrath was able to collect from the literature a total of eighty-five cases of this nature that had been treated surgically, and a number have been reported since. Lartigau reviews the literature and adds a new case. As the most appropriate designation for the condition he accepts that of chronic hyperplastic tuberculosis first used by Coquet in 1894. Lartigau's summary of the pathological and clinical characteristics of this affection is of great value. Though showing considerable variation hyperplastic tuberculosis of the intestine presents a well-defined pathological picture. Its most striking feature is the great thickening of portions of the intestinal wall resulting from the formation of tuberculous granulation tissue in the intestinal wall and mesentery. The ileocecal region is most commonly affected, the rectum next in order of frequency. Only rarely is the process limited to the small intestine. The thickening may be so extensive that a tumor-mass as large as a fetal head may be found presenting in the appendix region. The appendix itself is rarely involved. To the naked eye the thickening is very hard, firm and tendon-like. When cut into, small islands of fat (sclero-adipose tissue) or occasionally small caseating tubercles may be found scattered through the fibrous tissue. Polypoid growths into the lumen of the intestine are of frequent occurrence and may in themselves cause stenosis. Ulceration of the mucosa may or may not be present. On microscopical examination the typical histological appearances of tuberculosis are often absent. A diffuse embryonal cell infiltration resembling sarcoma may be present, but in the majority of cases the condition is characterized by the tendency to form a dense hyaline connective tissue. Numerous blood-vessels may be present and in some cases form a striking feature of the new tissue. Tubercle bacilli are found in scanty numbers in the majority of cases, occasionally they are numerous. The process is a very chronic one; this fact and the tendency to form sclerotic connective tissue speak for the relatively low virulence of the infection. Narrowing of the intestinal lumen is the almost constant result; single or multiple strictures may be formed. These are usually located near the ileocecal valve; occasionally the cavity of the cecum may be almost wholly obliterated. The mesenteric glands are usually tuberculous. The etiology of the affection is obscure; it may be primary or occur in association with tuberculosis of other organs. The symptoms are those of intestinal obstruction of slow development. The rectal variety of chronic hyperplastic tuberculosis has undoubtedly been frequently diagnosed as syphilis. Lartigau suggests that cases of intestinal cancer cured by resection in which no microscopical diagnosis was made may have been in reality cases of hyperplastic tuberculosis. Tuberculous processes showing a tendency to fibrous hyperplasia rather than to caseation are found also in the larynx, pleura, peritoneum, joints and lymph glands. In all cases the affection is to be regarded as an infection of low virulence.

Pathology of the Whitening of the Hair.—Metchnikoff (*Annales de l' Institut Pasteur*, December 25, 1901). As an introduction to the biological study of senility Metchnikoff contributes an article "*Sur le blanchiment des cheveux et des poils,*" based upon the theory of phagocytic action. Believing that phagocytosis plays a predominant roll in atrophy in general Metchnikoff asks if the theory of phagocytic action may not explain the disappearance of the pigment of the hair. In the study of this process in a dog thirteen years old he found that hairs which are turning white contain numerous irregular pigmented cells possessing long protoplasmic processes. The appearances are such as to suggest that these cells remove the pigment from the hair. To these pigmented cells Metchnikoff has given the name "pigmentophages." They are found chiefly in the peripheral layer of the hair; and their appearance in large numbers is coincident with the removal of the pigment from the hair, the process of depigmentation beginning in the peripheral layer. In hairs entirely white neither pigment nor pigmentophages are found. The pigment is ultimately disposed of by a destruction of the pigment within the phagocytes, or by the passage of the latter to the surface of the hair or their descent to the hair bulb and thence out into the tissues of the skin. To the pigmentophages Metchnikoff ascribes an ectoblastic origin. Similar appearances were found by him in the human hair, both in premature and sinile whitening; and Metchnikoff explains both of these conditions as due to a removal of pigment by means of the pigmentophages. The sudden blanching of the hair from intense emotion, as in a single night, is also explainable by this theory on the assumption that the pigmentophages are stimulated to unusual activity by violent emotions. The whitening of the hair in infectious diseases may be caused by the stimulating action of toxic substances upon the pigmentophages. The causes of the increased activity of these cells in old age cannot at present be explained.

EDITORIAL COMMENT.

THE HYGIENE OF SCHOOL LIFE.

Heretofore, as a rule, writers and thinkers upon the hygiene of school life have seemingly given the subject a too general consideration. Hygiene anywhere is good, and its claims upon school life have not been questioned. Whenever the desirability of a hygienic location, of a building constructed to allow perfect ventilation, to furnish proper light, to have hygienic floors and basement, tinted walls, covered blackboards properly arranged, benches of proper height and construction or when any other hygienic arrangement is proposed no objections are raised. Everyone admits their desirability but unfortunately few realize their absolute necessity. For this reason the claims advanced are being continually overruled and the health of growing children is being sacrificed, not suddenly so as to arouse the feeling, but slowly so that conviction is annulled.

In order that unenlightened or unwilling public authorities shall be constrained to give these reforms the attention they deserve, they must be furnished with exact and detailed information as to the results of unhygienic conditions. They must be told that forty per cent of many thousand children in the high schools of Europe were more or less nearsighted; that this defect increased in the ascent from the primary to the higher rooms; and that this defect was due to remediable causes. They must be made to understand that badly constructed benches are often responsible for curvature of the spine. Let them know how nervous disorders, so common, especially in girls, arise frequently from bad air, defective light and long hours of mental strain; that long sessions necessitating cold lunches and tending to neglect of the calls of nature predispose to digestive disorders; that to the overcrowding, impure air, overheating and sudden draughts of schoolrooms many a promising boy or girl owes the cough, perhaps neglected, which paves the way to consumption. Let the hygiene of school life be freely ventilated from the point of view of results as well as from general principles. It may be that in this way not only conviction but also obedience to conviction may be secured.

The daily inspection of school children, now practiced in Detroit and a few other cities, is a step in the right direction. The exclusion of all children suffering from or exposed to any of the contagious diseases, especially scarlet fever, diphtheria, measles, tonsillitis and whooping-cough, is absolutely essential to the integrity of school work. It may seem improbable but many teachers even, as well as parents, regard whooping-cough and measles as ridiculous excuses for remaining out of school.

The inspection of schools by a medical officer cannot fail to have a highly beneficial educative effect in addition to the avoidance of sickness and the saving of lives.

ANNOTATIONS.

THE AVAILABILITY OF THE DETROIT PUBLIC LIBRARY FOR MEDICAL PURPOSES.

A PUBLIC medical library has long been a desideratum in Detroit. The peculiar character of medical literature makes it impossible for the average physician to possess more than a makeshift of a library. Consequently, as the local public library authorities made no pretense to satisfy the great want, a few regular physicians attempted to do so a few years ago by the organization of the Detroit Medical and Library Association. Enthusiasm and generosity caused the society to give great promise for several years, but the undivided burden finally caused apathy, and the collected books and periodicals were in the end turned over to the public library commissioners in the hope that they might carry on the work. For various reasons the medical portion of the public library never assumed a working character. About a year ago a committee of the Detroit Medical Society established relations with the public library authorities, as a result of which the foundation of a working medical library seems to be established. A report of this committee dated February 19, 1902, announces the addition of more than sixty volumes and the regular contribution of more than one hundred medical journals since January 1, 1901. The latter include all the representative medical periodicals the world over and being conveniently disposed in a separate portion of the library devoted to this purpose, should receive the appreciative attention of the profession in Detroit and vicinity. Much use will create a greater want, which in turn will demand a more abundant supply.

THE PRACTICAL WORKING OF THE CHANDLER ACT.

It is a notorious fact that the effectiveness of a law is proportionate to the integrity and zeal of its executors rather than to its own provisions. A law having many good points may be a dead letter, and conversely an act having limited provisions may be made to work much good.

The Chandler bill, though vastly superior to the Howell medical act, was even at first felt to be weak in the authority vested in the board. That body, however, at its very first meeting wisely and courageously framed a high opinion of the provisions of the Howell act, which, sustained by the Supreme Court, gave them authority to refuse fraudulent registrations under the former law. As a result the State has already been rid of hundreds of incompetent and dangerous practicians. The work of registration is practically completed and the efficient secretary, Doctor B. D. Harison, has issued a documentary list of those qualified under the new law to practice medicine in Michigan. The future operations of the law embraces the prosecution of illegal practicians and the registration of qualified candidates. Being a state law similar in character to other penal acts concerned with the policing of the State, the enforcing of the Chandler medical act rests with the several prosecuting attorneys of the State. The board through its executive officer, thes ecretary, after refusing any applicant registration, has no further hold upon him. It is then the duty of the local prosecutor to secure the punishment of offenders. Upon suspicion of illegal practice he should order a thorough investigation. A sworn complaint by another physician is not necessary providing the officer will do his duty.

A special effort is now being made in Wayne county to get rid of unregistered physicians. A committee, representing the medical societies has prepared a list of illegal practicians and is endeavoring to assist in their prosecution. Failure to convict these lawbreakers will in no instance be the fault of the committee.

The registration of physicians in the future will rest wholly with the board. Judging by the standard they have set up we may feel assured of a zealous performance of their duties and, independently of other officers, expect in time to be freed from the fake and disreputable practicians with which our fair state has for so many years been infested.

MEDICAL NEWS.

A SOCIETY OF SPECIALISTS.

THE Detroit Ophthalmological and Otological Club is the name of a medical organization recently founded by a number of Detroit specialists who restrict their practice to diseases of the eye and ear. Membership is limited to physicians who are affiliated with the State Medical Society or some recognized local society. Doctor Walter R. Parker has been elected secretary. The chairman for each succeeding meeting will be appointed by the one officiating at each preceding meeting. The following are the charter members: Doctors Eugene Smith, Leartus Connor, Don M. Campbell, Lewis E. Maire, Albert Thuner, Robert W. Gillman, George E. Frothingham, George L. Renaud, and Walter R. Parker. Meetings will be held the first Tuesday evening in each month.

THE ORGANIZATION OF UROLOGISTS.

THE American Association of Urologists was instituted February 22, 1902, by the election of the following officers: President, Doctor Ramon Guiteras; vicepresident, Doctor William K. Otis; secretary, Doctor Ferd. C. Valentine; assistant secretary, Doctor A. D. Mabie; treasurer Doctor John Van der Poel. The guild is composed of active, corresponding and honorary members, and is practically modeled after the Societé Francaise d'Urologie, modified sufficiently to meet American conditions and circumstances. It was founded essentially for the purpose of further developing the study of the urinary organs and their diseases, and notwithstanding most of the charter members are genitourinary specialists, still membership is not restricted to this class, the constitution providing for the admission of gynecologists whose practice embraces renal and vesical surgery, persons who investigate the microscopy and chemistry of the urine, and practicians interested in the study of the kidney from a medical standpoint. The annual meetings will be held on the last day and the day following the meetings of the American Medical Association.

A PATHOLOGIC EXHIBIT.

THE American Medical Association will convene at Saratoga June 10. The committee on pathologic exhibit is anxious to secure specimens for exhibition at the meeting, and promises to exercise due vigilance over materials loaned and return them promptly. New apparatus, charts, et cetera, employed for purposes of illustration by teachers of physiology and pathology in medical colleges are likewise sought. Contributors need not restrict materials to the domain of pathology exclusively, but may include borderland findings in bacteriology, hematology, physiology, and biology. Physicians should select specimens illustrative of a particular classification as by such specialization the usefulness of the entire display is enhanced. Those having materials are requested to communicate with either Doctors F. M. Jeffries, 214 East Thirty-fourth street, New York City; W. A. Evans, 103 State street, Chicago; or Roger G. Perkins, Cleveland.

MEDICAL COMMENCEMENT ATTRACTIONS.

THE Alumni Association of the Detroit College of Medicine has arranged an elaborate program of lectures, clinics and festivities for the week preceding graduation exercises of that college. The initial number will be the president's address, which is announced to be delivered in the college building Wednesday, April 30, at 10:30 A. M. A summary of the program, which will be concluded Thursday, May 8, promises twenty-four illustrated lectures. eleven clinics, four laboratory demonstrations, a visit to the Eastern Asylum for the Insane, and seven festive occasions, at four of which there will be excellent musical programs. The medical and surgical features have been planned with the idea of interesting both general practician and specialist. Doctor C. B. Burr, medical director of Oak Grove Hospital; Doctor Miles A. Porter, professor of surgery and gynecology in the Fort Wayne College of Medicine; and Doctor J. F. W. Ross, professor of surgery in the Toronto University Medical College, will be guests of the association and will participate in the rendition of the program. All regular physicians whether graduates of the college or not are invited.

NECROLOGY.

PAUL FORTUNATUS MUNDÉ, M. D., LL, D., died in New York City, February 7, of cardiac disease, after a serious illness which lasted about two months. The doctor was born in Dresden, Saxony, September 7, 1846, and educated in Boston, where he afterward began the study of medicine at Harvard. His collegiate work was interrupted by the outbreak of the Civil war, in which he served as medical cadet, but with the cessation of hostilities he resumed medical study, and graduated from Harvard University in 1866. He began his medical career in the Bavarian army, where he served as volunteer assistant surgeon during the Austro-Prussian war, receiving the cross of civil merit at its close. Several years were then devoted to the special study of obstetrics at Wurzburg, where he filled the positions of clinical assistant to Scanzoni in the Lying-in Hospital and tutor at the School of Midwives. The degree of Master of Obstetrics was obtained by the doctor at Vienna, in 1871, whither he went to complete his studies. Again he entered the Bavarian army to render service as batallion surgeon during the Franco-Prussian war, and was decorated with the Iron Cross by the Emperor for heroic conduct at the siege of Paris. After receiving an honorable discharge he returned to America and located in New York City, where he achieved prominence as gynecologist, professor, editor and author.

REPORT OF BOARD OF REGISTRATION IN MEDICINE.

THE second annual report of the Michigan State Board of Registration in Medicine shows the present condition of that board. On January 1, 1902, there was a balance of $2,055.73 to its credit in the State treasury. During the two years ending October, 1901, certificates entitling the holders to practice were issued to 4,585 applicants. The total fees received were $13,849.20. The fees for the past year amounted to $4,819.20, while the disbursements were $5,414.56. It is estimated that the annual income for the future will be between $4,000 and $5,000. The receipts for the current year are estimated at $4,900, an amount $1,400 in excess of the probable expenses. The board favors a standard of preliminary education for the study of medicine, and the reciprocal exchange of certificates of registration. Regarding the extermination of disqualified practicians, the report says: "It is with a great deal of satisfaction that the board calls attention to the success of the Chandler medical act after an experience of twenty-seven months. Previous to September, 1899, Michigan was a favorite dumping ground for so-called graduates of fake and disreputable colleges. Over two hundred of the product of these medical factories had registered in one county alone. Not only has the board cut off entirely the undesirable future supply, but it has also caused practicians of this class already in the state either to give up practice or to qualify themselves properly. The board also found a large number of persons in practice in this state who had simply gone through the forms of registration under the medical act of 1883 without even having the slight qualifications required by the old act. These persons were denied certificates and consequently were forced out of practice. It also found a large number registered through fraud and perjury, claiming to be graduates of reputable medical colleges in their affidavits of registration. Also a large number were registered upon stolen diplomas. These persons have in most instances left Michigan for states where there is no medical act."

MINOR INTELLIGENCE.

THE Cincinnati Obstetrical Society has elected the following officers for the current year: President, Doctor Julia W. Carpenter; vicepresident, Doctor William Gillespie; secretary, Doctor Magnus A. Tate; corresponding secretary, Doctor E. S. McKee; treasurer, Doctor C. D. Palmer.

THE Central Michigan Medical Society elected the following officers at its recent annual meeting; President, Doctor S. H. Culver, of Mason; vicepresident, Doctor H. A. Haze, of Lansing; secretary-treasurer, Doctor L. Anna Ballard, of Lansing. The meetings will be held bimonthly during the current year.

AT a meeting of the trustees of the University of Pennsylvania, held February 4, Doctor George E. de Schweinitz, who now holds the chair of ophthalmology in Jefferson Medical College, Philadelphia, was elected to the chair of ophthalmology in the faculty of medicine of the University of Pennsylvania.

SURGEON-GENERAL STERNBERG recently received the health report of the American Army in the Philippines for the month ending November 15, 1901. There were 2,952 incapacitated for duty—a percentage of 6.79 of the entire command. Of this number 650 were confined in quarters, and 1,024 in regimental hospitals.

THE tablet which was erected to the memory of Doctor Charles Meigs Wilson, of Philadelphia, by fourteen nurses who were his pupils at the Nurses' Training School of that city when he was physician thereto, was unveiled on December 28. Doctor Wilson, who died in 1891, was the founder of the Nurses' Training School.

OSTEOPATHY is again seeking legislation in New York. Last year a measure in behalf of this cult failed of passage. A bill is now before the legislature to compel the Board of Regents to grant a license to any osteopath desiring to practice in that state; provided he satisfactorily passes an examination in all the branches of medicine except materia medica and therapeutics.

AT a recent meeting of the Metropolitan Medical Society of New York the following officers were elected for the current year: President, Doctor W. M. Leszynsky; vicepresident, Doctor F. L. Wachenheim; recording secretary, Doctor W. M. Brickner, corresponding secretary, Doctor S. Yankauer; treasurer, Doctor I. Pierce Oberndorfer.

SOMATOPHY is a system of therapeutics which a New York doctor of divinity named Ward claims to have originated. His degree entitling him to the appellation of doctor, he was sought for medical treatment by a woman of that city. She declined to pay his bill of ninety dollars for services rendered, and he instituted suit to recover. This lead to an investigation which resulted in counsel for the County Medical Society arresting Ward on a charge of practicing medicine without a license.

DOCTOR LEONIDAS H. LAIDLEY, a physician of Saint Louis since 1872, has been appointed Medical Director of the Saint Louis World's Fair. He is a native of Carmichaels, Pennsylvania, and in 1866 received authority from the Cleveland Medical College to practice medicine. Subsequently he obtained degrees from the Jefferson Medical College and the Bellevue Hospital Medical College. He is a member of the Saint Louis Medical Society, and enjoys a college and hospital connection.

ROCKLAND, Sullivan county, New York, has just enacted an ordinance against the white plague. It imposes a fine of fifty dollars on any person who conducts a hotel or sanitarium for the accommodation or treatment of consumptives, or even harbors in his home any person afflicted with the disease unless the sufferer be an immediate relative, or some member of his family or dependent upon him for support. It also prohibits a consumptive from visiting relatives or friends residing in the village. It is reported that the town of Liberty recently adopted an ordinance imposing like restrictions, but this has been denied by a physician of that place.

IN the description of the Beaumont monument which was published in our December issue the inscription was inadvertently omitted. It is as follows:

NEAR THIS SPOT
DOCTOR WILLIAM BEAUMONT
U. S. A.
MADE THOSE EXPERIMENTS UPON
ALEXIS ST. MARTIN
WHICH BROUGHT FAME TO HIMSELF
AND HONOR TO AMERICAN MEDICINE.
ERECTED BY
THE UPPER PENINSULAR AND MICHIGAN
STATE MEDICAL SOCIETIES,
JULY 10, 1900.

The monument was completed and placed in position the latter part of August, 1901.

DOCTOR JOSEPH J. KINYOUN, late surgeon of the Marine Hospital Service and director of the Hygienic Laboratory at Washington, has assumed the directorship of the biologic laboratories of the H. K. Mulford Company, at Glenolcen, Pennsylvania. Doctor Kinyoun is extensively and favorably known as a sanitarian and investigator, and is peculiarly fitted to conduct original research work. During his connection with the government he enjoyed special advantages in the study of bacteriology and allied subjects, having been sent to Berlin and Paris on several occasions, where he received instruction under Roux, Koch, Pasteur, and Behring, in the Hygienic Institute, the Institute for Infectious Disease, Berlin, and the Pasteur Institute, Paris. He was also delegated to visit the various bacteriologic institutes of Europe and Japan for the purpose of acquainting himself with the progress made in serum organotherapy and investigating infectious diseases.

RECENT PUBLICATIONS.

REVIEWS.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, VOLUME II.*

OF particular value in this volume are exhaustive articles on blood, brain and cancer. About one-third of the book is taken up with a consideration of the second of these topics, and several large plates embellish the work. Cataracts and catheterization are also valuable contributions. It must be admitted, however, that due space is given the various other subjects included in this number. Among the well-known writers in the large staff of contributors are a number less known, but their articles justify their selection as contributors to this great work.

*Edited by Albert H. Buck, M. D., New York City. William Wood & Company, New York, 1901.

NOTHNAGEL'S ENCYCLOPEDIA: TYPHOID AND TYPHUS FEVERS.*

THE publishers of this volume have again put the profession in this country under obligation in presenting this standard work.

Under the editorial supervision of Doctors Osler and Stengel the translation is made as good as first hand. The work is comprehensive, critical and withal very readable. The recent literature upon the subject has been taken advantage of in bringing the consideration of these fevers up-to-date.

*By Doctor H. Curschmann, of Leipsic. Edited with additions by William Osler, M. D., Professor of the Principles and Practice of Medicine in Johns Hopkins University. Handsome octavo of 636 pages, illustrated, including a number of valuable temperature charts and two full-page colored plates. Philadelphia and London: W. B. Saunders & Company, 1901. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

MOSQUITO BRIGADES AND HOW TO ORGANIZE THEM.*

THIS little book is much more than the title indicates. The author, speaking of the discomfort and disease caused by insects asks the question: "Rather than take so much trouble in protecting ourselves from the bites of these insects, would it not be better to get rid of them at once?" He himself has shown that this can be done, in Africa, and he now tells us in a lively and fascinating way how it was done. He also tells us much about the life-history of mosquitoes and about their breeding places. The plan for the organization of "mosquito brigades" should be read, by all who live in mosquito-infected localities. "Improvement Societies" in such places will find the work invaluable, while all who have followed the recent discoveries concerning mosquitoes and disease will learn much that is not described in the more technical works. Along with Doctor Howard's book this must have an important part in future sanitary work. G. D.

*By Ronald Ross, F. R. C. S., et cetera, Lecturer on Tropical Medicine in the Liverpool School of Tropical Medicine. New York: Longmans, Green & Company, 1902.

MICROBES AND HEALTH.*

THIS book is of a controversial character. The author seems to have it in for bacteriologists, boards of health, and the manufacturers of biologic products, and intimates that the rest of us are the victims of a vainglorious and fortunate scheme. He looks upon germs with a degree of contempt, admitting, however, that they are useful servants—scavengers in disease. From his point of view all germs seem to look alike. No distinction is made between parasites and saprophytes. Bacilli and micrococci are merely convenient terms with which to confound us. Germs, he thinks, are the result—not the cause—of disease. As to the cause of epidemics, contagion, et cetera, he states: "Undoubtedly some epidemics are caused by atmospheric changes," and the reason assigned is: "It cannot be otherwise, because its appearance is so sudden and widespread." Although denying any casual relation of germs to disease, the author does seem to acknowledge the existence of a specific poison or virus—a contagion—which "acts as a ferment, just as the yeast-cells act as a ferment," and proceeds to state that there are many kinds of fermentations, which, when they take place in the body, constitute disease. Each kind of ferment produces a different kind of disease—the result of a natural law. The author asks: "What is the difference whether a germ or a specific virus causes disease?" and answers: "The difference is, the specific virus can only emanate from a person having the disease, while germs are present in countless numbers at all times and places." Further on he uses the term antiseptics in the usual sense. If the author has good reason to expect perfection in the science of bacteriology then he may rightfully lay claim against bacteriologists in general, for the subject includes many unsolved problems. In seeking to tear down what have come to be generally accepted notions, he does so mostly by quotations, many of them irrelevant, and by jocose stories and remarks, and unfortunately the substitute offered is but a mere assumption. The book furnishes amusement, but will not produce conviction. It is presumed that the author has pursued the study of bacteriology. Whether or not, we would respectfully advise him to advance further in the subject. He reminds us of the familiar old doctor who, after years of practice in the country, declares that he has never seen a case of puerperal fever or of blood-poisoning in any form, and does not believe in washing his hands.

* By Samuel J. Wilson, M. D., Member Clinton County Medical Society, Central Michigan Medical Society, Michigan State Medical Society. Published by the author. Detroit, Michigan, 1901.

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ORIGINAL ARTICLES.

MEMOIRS.

THE TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I SHOULD feel that I must apologize to you for selecting such a trite subject for discussion as the treatment of retrodisplacements of the uterus had not my experience in postgraduate teaching demonstrated it to be an ever interesting topic to the practicing physician. I am aware also of the fact that the many operations and their modifications devised for the cure of these lesions have had a tendency to confuse the general practitioner, as well as to perplex and sometimes to disgust the specialist. Therefore, it will be my endeavor to place before you in as succinct a form as possible the means at our command for rectifying and maintaining in its correct position a retrodisplaced uterus.

At the outset, allow me to state that I do not agree with those who claim that a retrodisplaced uterus *per se* does not call for treatment. My experience has shown that if the malposition is not the result of disease, as is the case in a large majority of instances, it is one of the principal causes of subsequent

*Read by invitation before the BARRY AND EATON COUNTY MEDICAL SOCIETY, January 30, 1902.

disease of the organ. Hence, for good prophylaxis, if for no other reasons, I feel called upon to treat every case of decided backward displacement of the uterus. If the woman at the time of my treatment has but few symptoms referable to the displacement, so much the better for the patient. I am satisfied, and certainly she is, if a certain train of symptoms never materialize, and the best way of avoiding them is to place the uterus as nearly as possible in a normal position.

But the exceptional case has been under consideration. Usually when the patient applies for treatment there are symptoms enough from the displacement. The question before us is, what line of treatment shall be instituted that these symptoms will subside? Obviously, it will depend upon the presence or absence of other pathologic pelvic conditions. It naturally follows, then, that treatment to be successful must be instituted after a correct diagnosis has been made.

The different methods of treatment of the malposition of the uterus under discussion may, for convenience, be classified as follows: (1) Treatment by pessaries; (2) treatment by the shortening of the round ligaments; (3) treatment by vaginal fixation; (4) treatment by the suspension or fixation of the fundus to the abdominal wall.

I.—Treatment by pessaries.—One would think, if the mention of this mode of treatment in current literature be any criterion, that there is no longer any place for the pessary in the gynecologic armamentarium. That the various operative procedures have replaced largely the treatment of retrodisplacement by the pessary is only too true, and I, for one, believe that there are good scientific reasons for this change. But that the pessary occupies a certain limited field of usefulness cannot be gainsaid. From the pathologic standpoint there can be no objection to the use of this means of support of the displaced uterus when, first, the organ is free from adhesions, and can be held in position while a support is being fitted; when, second, the pelvis is practically free from tenderness; and when, third, there is enough support in the pelvic floor to maintain the pessary in position.

(1) Freedom from adhesions. Inability to detect uterine adhesions is, I believe, the true explanation of why the pessary in so many cases fails to bring about the desired relief. Dense adhesions, binding uterus and appendages to the rectum and posterior surface of the broad ligaments and holding it firmly in its malposition, are easily diagnosed even by the unskilled. Less dense adhesions lifting up the rectum as the uterus is

brought forward behind the pubes are not so easily made out by the examining finger; yet these bands, if overlooked and a pessary be fitted, will pull back the fundus of the uterus over the posterior bar of the instrument, and augment rather than diminish the pain. Whenever we are in doubt as to the presence or absence of adhesions, an examination should be made under anesthesia. Not only will this enable us to determine accurately the presence and consistency of the adhesions, but, if there be none present, the uterus can be restored to its normal position and the pessary fitted at the same time.

(2) Absence of pelvic tenderness. Even in those cases in which no adhesions exist, there may be considerable pelvic sensitiveness resulting from the congestion of the appendages produced by their being dragged and held backward by the retrodisplaced fundus. Their position results in impaired circulation and chronic changes. When prolapsed and sensitive tubes and ovaries complicate the retrodisplaced uterus, after the latter has been restored to its normal position, the appendages must be held forward, not by a hard rubber pessary but by wool tampons properly medicated, until the tubal and ovarian tenderness has entirely disappeared. Then and then only can the pessary be worn with comfort. In fact unless this ovarian tenderness can be overcome and the size of the ovary reduced by the means suggested, my experience has shown me that other modes of treatment were best instituted.

(3) Sufficient pelvic support. To the physician with a mechanical turn of mind it may seem time wasted to dwell on this phase of the subject. The specialist, however, having patients consult him wearing all sorts and varieties of supports when no support could possibly do any good, knows only too well that some who attempt to fit a pessary have not mastered the first principles of mechanics. A good practical test of whether the pelvic floor can retain a pessary in position is to examine a woman in the upright position. An apparently well-fitting pessary with the woman in a recumbent position, but which can be forced out of the vulva, either partially or completely, by the straining of the patient, should be an indication that such a case is not suitable for pessary treatment.

Certain patients should not be subjected to pessary treatment, even if there be no pelvic contraindications. I refer to certain types of women with decided neurasthenic symptoms. They are usually unmarried and of an exceedingly melancholic temperament. To such a patient, the knowledge that she is wearing a support makes life intolerable and under these conditions, I have found it better to operate. The shock of the operation is far less to these women than the continued shock of going into a physician's office, and the feeling that they are defective and ever will be so.

It is only in the exceptional case that we can hold out hope to the woman wearing a pessary for decided retrodisplacement that in time she will be able to dispense with the support. This statement does not apply to those cases wherein the sagging of the uterus backward is the result of a ruptured perineum, provided that a proper plastic operation be performed. In some cases a support fitted after the plastic operation can, after a time, be done away with and the uterus remain in its normal position. The explanation, however, lies in the additional perineal support brought about by the operative procedure, and is in no way due to the use of the instrument. This is of very little practical importance, however, since if such a patient is to have a plastic operation, it is far better to add, while she is under the anesthetic, some operation which will hold the uterus in position, rather than to rely upon the subsequent support of the organ by a pessary.

Since, then, the pessary treatment in the main is palliative, I must plead guilty to a surgeon's dislike to it; but as a gynecologist who must relieve his patient, not always as he but she wishes, I must accept the inevitable; and if the patient will not entertain the idea of an operation, I do the next best thing and make use of a support as one of the best palliative means at my command.

II.—Treatment by shortening the round ligaments.—This operative procedure I have found the very best in the presence of suitable pelvic conditions. The uterus must be freely movable, and the appendages practically normal and free from adhesions to surrounding organs. The same care must be exercised in determining this absence from adhesions, when it is proposed to shorten the round ligaments, as was mentioned above in speaking of the treatment by pessaries. Here, also, many failures after Alexander's operation have been due to a failure to recognize existing uteropelvic adhesions. The shortened round ligaments may hold the fundus of the uterus forward, but adhesions between the latter organ and the rectum will exert constantly a pull backward, and great pain will be the result. Even a uterus easily replacable without an anesthetic and giving every indication of being suitable for Alexander's operation should be palpated carefully under anesthesia just before the operation. On a number of occasions I have, under an anesthetic, detected fine bands of adhesions stretched between fundus and rectum and have changed to an abdominal operation, thereby confirming my diagnosis.

Any operative procedure aiming to retain a replaced retroverted uterus in its normal position should be so directed that the organ is not only maintained in this position, but that its relation to the surrounding structures be such that it be left a movable and not a fixed organ. A uterus movable within certain limits can perform its function and the woman go on to full term and have an easy labor. A fixed organ, on the other hand, means one that cannot expand, and abortion and dystocia are likely to result.

The Alexander operation fulfills all these indications. and I have yet to see a case reported wherein subsequent pregnancy has been at all affected unfavorably by the operation. A number of my patients in whom the round ligaments have been shortened have become pregnant and have had easy, natural labors. Two patients have been twice pregnant, and not only were the labors perfectly normal, but examination some months after the confinements showed the uterus to be in entirely normal position.

As regards the technique of the operation, I may say that I always shorten the round ligaments after fully exposing the inguinal canal. Having tried most of the more reasonable modifications and substitutions for the Alexander operation, I returned in the end to it as the most satisfactory. My experience with the operation on many patients has led me to the following conclusions;

(1) The round ligament is never absent. It may be a mere strand or it may turn upward after passing through the internal ring instead of traversing the canal, but it is always present close to the inner ring.

(2) It should be dissected out after exposure of the canal by an incision through the external oblique fascia, and not, together with other tissues, grabbed by a hook. In other words, it is found easily when the relation of the parts is not destroyed.

(3) After stripping the round ligaments, the operator should introduce one finger within the vagina, and while the fundus of the uterus is raised by the ligaments, he should push the cervix backward in the pelvis toward the coccyx. By this procedure the cervix is pushed backward and the fundus tilted forward. If the direction of the cervix is not changed but the uterus simply pulled up by the ligaments, the anterior instead of the posterior surface of the uterus will face the abdominal wall.

(4) The shortened ligaments need not be cut, but after being sutured to either side of the external fascia by catgut ligatures, may be dropped back into the canal.

(5) If the proper care has been exercised in the selection of the case for operation, and the necessary plastic operations on the pelvic floor have been performed properly, a pessary need not be worn at all afterward.

III.—Treatment by vaginal fixation.—I speak of this method only to condemn it. I am not referring now to the shortening of the round ligaments by the vaginal route, or to other vaginal methods in which the round ligaments are made use of in maintaining the fundus of the uterus in an anterior position. I refer to those operations wherein the fundus is fixed to the vaginal wall. This method will not meet the requirement of subsequent mobility, and the results in women who have become pregnant after this operation have been most disastrous; hence it is an unjustifiable procedure except when both appendages have been removed. Even then symptoms can be relieved better by one of the abdominal supporting operations.

IV.—Treatment by suspension or fixation of the fundus uteri to the abdominal wall.—The terms "ventrofixation" and "ventrosuspension" are apt to be used interchangeably; in reality they are entirely different procedures. In ventrofixation the fundus is united to the parietal peritoneum or abdominal muscles by the densest adhesions. I recently dissected out a fistulous tract leading from the surface of the abdomen to the fundus of the uterus. At the bottom of the tract were silkwormgut sutures employed six years before to unite the uterine and muscular tissues. The resulting adhesions were so dense that they yielded only to a sharp scalpel. A suspended uterus, on the other hand, after a certain number of months will be found to be connected to the parietal peritoneum by one or more bands of adhesions, two to two and one-half inches in length. These bands allow a certain amount of mobility of the uterus. The results, as far as the uterus is concerned when it has been suspended and fixed and then pregnancy has taken place, will be very different. When the fundus is held by firm adhesions to the abdominal wall, enlargement of the uterus sufficient to accommodate the growing fetus can take place only by an enormous distension and pouching out, together with a thinning of the posterior wall. This may result in abortion or in various degrees of dystocia necessitating, perhaps, the most radical and dangerous obstetric operations. A number of cases have been reported wherein, after this operation, the pregnant uterus has ruptured.

Hence the fundus should not be fixed under any conditions except when both appendages have been removed. Statistics show that the movable suspended uterus can perform its functions without much danger to the mother or child. A number of my patients with suspended uteri have become pregnant and been delivered at full term without mishap, and my experience is only similar to that of others.

In order to secure suspension and not fixation of the uterus, care must be taken that after the passage of the fixation sutures, the parietal peritoneal incision be accurately approximated preferably by a continuous catgut stitch. Interrupted through-and-through abdominal wall stitches may leave gaps in the peritoneum, with subsequent adhesion of the fundus to the muscle.

I employ ventrosuspension more frequently than any of the other operations under discussion, since the majority of my patients have concomitant tubal and ovarian disease necessitating abdominal section. The diseased ovaries and tubes are resected or removed according to the necessities of the case, the pelvic adhesions are cared for, and then as a final step the uterus is suspended to the abdominal wall.

SUMMARY.

(1) Every case of retrodisplaced uterus should be subjected to treatment since the condition, if not the result of disease, is one of the principal causes of subsequent disease of the organ.

(2) The kind of treatment suitable for each case will depend upon the presence or absence of other pathologic pelvic conditions.

(3) While the treatment of retrodisplacements by means of mechanical supports has for scientific reasons been supplanted by various operative measures, the pessary still occupies a certain limited field of usefulness.

(4) In order that the pessary treatment be successful the uterus to be supported should be (a) free from adhesions; (b) there should be absence of pelvic tenderness; and (c) there should be sufficient integrity of the pelvic floor for the retention of the pessary in place.

(5) Treatment by means of the pessary is at the best merely palliative, and the uterus can be maintained in the correct position much better by operative means.

(6) Shortening of the round ligaments in the inguinal canal is the best operative procedure for retrodisplacements when the uterus is free from adhesions and its appendages are normal.

(7) In properly selected cases, Alexander's operation will result in symptomatic and anatomic cures.

(8) The operation will have no effect upon subsequent pregnancies, and the uterus will remain in its normal position after delivery.

(9) Vaginal fixation, because of its bad effect upon subsequent pregnancy, is not a justifiable surgical procedure except when the appendages have been removed.

(10) Ventrosuspension of the uterus is entirely different from the operation of ventrofixation. Because of the disastrous results of the latter upon subsequent pregnancies, it is never justifiable except after removal of the appendages.

SERUM AND LYMPH THERAPY CONSIDERED FROM A CLINICAL STANDPOINT.*

BY WILLIAM M. DONALD, M. D., DETROIT, MICHIGAN.
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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

FOR all therapeutic measures the clinical test must be the court of last resort. No matter what the chemist may decide; no matter what the bacteriologist may claim; unless the clinician puts the stamp of his approval upon their efforts their work is all in vain.

I wish, therefore, to present a paper to you which will view this subject entirely from a clinical standpoint, suppressing almost entirely a discussion of laboratory methods and of the theoretical side of it. These in themselves are intensely interesting, but would require a separate paper to discuss them with any satisfaction. I shall also endeavor to present the subject in such a way as to provoke the utmost discussion, so that the blasts from many voices shall winnow the chaff and leave to us afterward only the kernels of good wheat.

There are two lymphs, so far as I know, before the medical profession today. One is the so-called goat's lymph which is, in my opinion, a fake. The other is the vaccine lymph, which has, I need hardly say, my unqualified approval.

The so-called goat's lymph is manufactured by a firm in Chicago which sells the right for its use in specified territories to certain physicians who are willing to pay the price. The method of production is kept more or less secret and the whole thing appears to me to be a piece of quackery. This lymph is used by the physicians who have bought the right for it for tuberculosis and kindred ailments. I understand that some reputable manufacturers are placing upon the market a pure goat's lymph or rather goat's serum which they sell to those who want it, but they do not recommend it. It has long been known of course that the goat is immune to almost everything, including tin cans, thistles, clothing and general rubbish, and this fact has led some physicians to believe that the pure goat's serum might with advantage be employed in suspected or incipient cases of tuberculosis, and in cases of general debility. I do not believe that clinical experience has shown the fervid hopes of these workers to have been realized, but for those who want it, a pure goat's serum can be had from reputable manufacturers of biological products. It is, therefore, not necessary for anyone wishing to use this serum to purchase from other than regular ethical manufacturers to secure it.

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* Read before the DETROIT MEDICAL SOCIETY.

In the long years that have elapsed since the introduction of vaccine lymph, and with the almost unqualified approval given it by the medical profession, one would naturally think that its position was well established, and yet I think that every physician realizes that there is an undercurrent of opposition to vaccination in the lay mind. Only a year ago a book appeared before the public written by WALLACE, the codiscoverer of evolution with DARWIN, entitled "The Wonderful Century." This book has had a wide sale and a wide reading. In it WALLACE at great length voices his disbelief in the efficacy of vaccination as a protective measure against smallpox, and presents a large accumulation of so-called evidence to substantiate his view. A great many cultured people have read this book, and, realizing WALLACE'S position in the scientific world, have been led to adopt, in part at least, his views. The subject has been brought to my attention a number of times by cultured, thoughtful people and I have been asked my opinion as to the merits of the discussion. WALLACE presents figures innumerable and reports cases remarkably vague. One of the cases reported by him was that of blood poisoning following vaccination, which would, I think, be regarded now by any educated physician as a case of septic peritonitis due to a diseased appendix. I mention this to illustrate the value of WALLACE'S arguments. As for his figures, it is a fact that figures are the most outrageous liars imaginable, and statistics can be made to prove anything. The one argument that I use with most force when the laity discuss vaccination with me is this: that I have never seen a man enter a region infected with smallpox who would object to the slight prophylactic measure of vaccinnation if he were in immediate danger. I passed through the smallpox epidemic in Montreal in 1885, in which three hundred died from the disease each month for ten months, making a total of three thousand who succumbed on account of the deep-rooted opposition of the French-Canadian people to vaccination. During the epidemic, in the Protestant Smallpox Hospital, not a single person connected with the hospital had smallpox. Doctors visited their patients, nurses waited upon them, orderlies removed the soiled linen and the dead bodies, charwomen cleaned the floors and rooms. All of these people were vaccinated and revaccinated, and as I said before, not one of them contracted the disease. In the Catholic Smallpox Hospital almost as good a result was shown. Could there be a better demonstration of the value of vaccination as a protection against smallpox?

The improvements in the manufacture of vaccine in the last few years have made the operation a comparatively trifling one. Glycerinated lymph and aseptic lymph have removed much of the danger. The recent unfortunate occurrences in New Jersey, in which tetanus in many cases followed vaccination, seemed to have been referable to other causes than to the vaccine. Glycerinated lymph does not seem to give us as many "takes," so-called, as the old lymph used to give. Whether it is as good a protection or not may probably be considered a moot question. The concensus of opinion, however, is that when a good "take" is secured the protection is adequate.

Coming now to the discussion of sera, the one *facile princeps* is of course the antidiphtheritic serum. Its position is no longer problematic. Reports from all sources, European, English, American, Oriental, indicate only unqualified approval. Here and there a little flicker of dissent emanates from some cheap medical journal written by some physician whose energy is evidently greater than his knowledge; but the expressions are too futile and feeble to be of any weight or interest. To secure the maximum of benefit the serum must of course be given early and in sufficiently large doses. It has been demonstrated time and time again that enormous doses in severe cases are entirely harmless. As a prophylactic I have used it in about five hundred cases. During four different epidemics in the Protestant Orphan Asylum in this city the results have been uniformly successful. Reports equally good come from similar institutions throughout the country. The recent disastrous result in Saint Louis following the use of serum drawn from a horse which suffered shortly after withdrawal from tetanus, can only emphasize the great care necessary in producing a remedy so potent.

Antistreptococcic serum is of uncertain value. Personally I find it of little use, and yet other observers have employed it with excellent results. The reports that have come recently from English observers would indicate that we have either not differentiated our varieties of streptococci or that we have not differentiated with sufficient clearness our clinical types of septicemia. If this serum is of value we want it, but my results have been so discouraging that I no longer use it except as a last resort. Then I use it only that I may conscientiously feel that I have given my patient every possible chance. In puerperal septicemia particularly, it has proved in my hands a woeful failure; and yet other observers have had seemingly good results. Why this diversity? I do not know. I but record my own experience when I say it is a failure.

With antitetanic serum I have had no personal experience. The reports of cases are not encouraging. It is doubtful if most of the cases reported as cured by this serum would not have recovered equally as well through the use of other agents. Laboratory experience would indicate that if it is to be of any particular value it must be given at the first sign of tetanic difficulty in very large doses. At the present writing, however, it can be considered only as in its experimental stage. Biologists state that in the laboratory this serum is one of the most efficient in use, and that arguing from laboratory experiments it should be the equal clinically of antidiphtheritic serum. As a matter of fact it is vastly inferior and not to be compared with it. This is but another demonstration of the diction laid down in the first page of this paper, namely, that clinical proof must substantiate all laboratory experiments before a drug or product can be considered of therapeutic value.

There are several productions which are usually classed under the head of sera, but which are really watery extracts of the bacteria, which we shall next consider. Coley's mixture is one of the best known. It is a mixture of the toxins of streptococcus erysipelatis and bacillus prodigiosus, along with some of the attenuated bacteria of the toxins themselves. As is well known, this is used for the treatment of inoperable sarcoma. A biologist informs me that the demand for Coley's mixture is increasing, and Doctor Coley continues to write encouraging letters with regard to the results of this serum. Personally I have abandoned the use of it for several years. About six years ago I used this mixture upon six cases withdrawn from my own clinic and the clinic of DOCTOR McGRAW at Saint Mary's Hospital, but the results were absolutely negative. DOCTOR COLEY, a reputable practician of New York City, seems to obtain results, but he is the only man who does — just why I do not know. It is certain that in the cases which I treated, although I followed his direction closely, I was unable to obtain any results whatever.

Tuberculin, the much-vaunted remedy of KOCH, is I think used now only in veterinary practice to diagnose tuberculosis in cattle. It is almost certain for this purpose, and is exceedingly valuable also as a diagnostic agent in some obscure cases of tuberculosis of glands, et cetera, in man. It has been used with much success for this purpose, but it may be considered a somewhat dangerous agent, inasmuch as cases have been reported wherein the introduction of tuberculin for diagnostic purposes has resulted in the lighting up of a vigorous fire and the destruction of the patient in a very short time. In the recent Tuberculosis Congress in England, PROFESSOR KOCH urged its use as a therapeutic agent, but the most eminent physicians present disagreed almost entirely with KOCH in his views as to the therapeutic value of it. OSLER and others present urged its use in obscure cases of tuberculosis of internal organs such as the peritoneum, the bronchial glands, the mesenteric glands, et cetera; and in well-selected cases it would seem from analogy to be a valuable diagnostic agent. Therapeutically, however, it must, I think, be considered a failure. VON RUCK, of North Carolina, is using a modified form of tuberculin now and is claiming good results from it. To the unbiased observer, however, it would seem as if most of his results were due to climate and hygiene.

The sera of bubonic plague are probably quite satisfactorily demonstrated and seem to be of decided value. To us in this country, however, they offer little of interest.

The serums of yellow fever and cholera may be considered as more or less in the experimental stage. The serum of syphilis is, so far as I know, not now used at all.

Some work is being done in laboratories upon the bacteria and sera of scarlet fever and the other infectious diseases of childhood, but these are all in the experimental stage.

The Pasteur Institutes in New York, Paris and Chicago are working along the line of prophylaxis and cure in rabies with antirabic serum. Used early the treatment is undoubtedly of value, but it is certain that many of their suspected cases, and many of their so-called cases of rabies are nothing more than cases of pseudorabies. There is so little rabies in America that the matter seems of little interest, and yet the disease is so terrible that a curative agent, even in a single case, must be considered a valuable product.

To conclude with a summary, we have as undoubted valuable products among the lymphs and serums but these three:

(1) A prophylactic agent—vaccine.
(2) A diagnostic agent—tuberculin.
(3) A curative agent—antidiphtheritic serum.

SPECIFIC DYSENTERY.*

BY WALTER E. GRIFFIN, M. D., ANN ARBOR, MICHIGAN.
ASSISTANT SURGEON IN THE UNITED STATES NAVY.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

ACUTE specific dysentery is an infectious disease, characterized anatomically by marked congestion and thickening of the intestinal wall, with superficial necrosis of the mucosa and parenchymatous changes in the various organs. The specific organism is always found during the acute stage, and the blood in a majority of cases gives a distinct agglutinative reaction with the organism.

Etiologically it appears to be due to a variety of different organisms, any one of which may be the cause of that form of the disease. It is most common during the months of July, August and September, more cases occurring in these three months than in the other nine together. Long exposure to cold and wet, heavy marches, overcrowding, and intestinal catarrhs, especially in excessive drinkers, are predisposing causes. Malaria has been found coexisting with the disease and may be a factor. Neither age, race, nor sex seems to have any influence. Among certain regiments of our eastern troops it is prevalent (more so than typhoid), while in others living under apparently the same conditions it is unknown. No case of the disease has been reported, that I can find, among our troops in the Sulu Islands or Mindanao though it is prevalent in Luzon, Cuba and Panay farther north. It is also found in epidemic form in Japan and China. KRUSE has reported an epidemic in Germany. The source of infection is probably through drinking water and uncooked foods. It is very fatal, generally causing death in from one to three weeks though patients have died on the second and third day. Of the epidemics reported within the last few years by PRIOR, HLAVA, KLEBS, MAGGIORA, OGATA,

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*Read before the WASHTENAW COUNTY (Ann Arbor) MEDICAL SOCIETY.

SYLVESTRI, KRUSE, PASGUALE, and CELLI, the organisms described by each have appeared to be the cause of the given epidemic, which they studied, so I will attempt to give a brief review of their history.

In 1883 PRIOR first described a micrococcus which he found singly or in clumps in the stools and mucous tissue of the intestines. In 1886 HLAVA, believing certain cases of dysentery to be of a specific origin, made extensive bacteriologic studies of a large number of cases and isolated nineteen different organisms from the feces of patients suffering from the disease, but was unable to produce with any of them in animals the specific lesions. The same year KLEBS and ZIEGLER found a bacillus in the intestinal glands and mucosa of their patients, but were unable to reproduce the disease in animals.

MAGGIORIA, in 1891, studied a small epidemic of twenty cases. He found the bacillus coli communis present in large numbers, and the occasional presence of staphylococcus pyo. genes albus and aureus, bacillus pyocyaneus and fluorescens liquefaciens, but, believed this epidemic to be the result of the abnormal virulence of the bacillus coli communis.

OGATA, in 1892, studied an epidemic in Japan and in eleven out of fifteen cases succeeded in isolating from the ulcers in the intestine a short fine bacillus with rounded ends and actively motile. It was not decolorized by Gram's stains. On agar it formed greenish yellow colonies, liquified gelatin, and caused ulcerative lesions when injected into the rectum of guinea pigs. He believed this organism to be the cause of the disease in Japan. VALDO, in studying an epidemic at Padua, isolated the same organism as OGATA.

CELLI and FIOCCA, in 1895 in Egypt, were able to produce dysentery by injecting stools free from amebæ into the rectum, but concluded, as did MAGGIORA, that it is due to the bacillus coli communis, which when acted upon by other bacteria or their products is capable of becoming virulent and of eliminating a powerful toxin which is precipitated by alcohol from bouillon cultures and soluble in water, and that when this is injected per rectum it is capable of producing typical dysentery. CELLI, however, changed his conclusions to a slight extent the following year, after a further study of the bacillus, and gave it the name of bacillus coli dysenteriæ.

In 1897 VALERIO isolated an organism which resembled a coccus, whose colonies gave a greenish tinge on agar, liquefied gelatin and fermented sugar. Bouillon cultures did not give the Widal reaction. It was not decolorized by Gram's stain. The serum of dogs minimized with this bacillus would protect guinea pigs and chickens. He believed this bacillus to be identical with that of CELLI.

I have spoken at length of the organisms of OGATA, CELLI and VALERIO, because in their cultural characteristics they resemble to a marked degree those of the bacillus dysenteriæ of SHIGA, FLEXNER, STRONG and KRUSE.

In 1898 SHIGA, working in KITASATO'S laboratory in Tokyo, described a bacillus which he isolated from thirty-four out of thirty-six of his cases and believed to be the specific cause of the disease. He reasoned that the blood serum of persons suffering from a disease had an agglutinating reaction on the bacteria causing that disease, or had an intimate connection with it. Using this argument he isolated an organism which he called bacillus dysenteriæ, and which gave in the whole thirty-four cases the agglutinating reaction with the blood serum.

In 1899 FLEXNER and STRONG, working in the army pathologic laboratory at Manila, were able to isolate an organism from three acute cases of dysentery that gave an agglutinating reaction with the blood serum of patients suffering from the disease, which resembled very closely that of SHIGA in its morphology and pathogenesis, and which they believed was identical with bacillus dysenteriæ and the cause of the acute infectious form of the disease in the Philippines among our troops.

They describe this bacillus as a short rod with rounded ends, moderately motile, with no flagella or spores that could be demonstrated. It is decolorized by Gram's method. On gelatin plate cultures at room temperature this bacillus produces small white granular dot-like columns, light yellow in color. After several days they become larger with a dark center and coarse granular periphery with a yellowish tinge. There is no difference between the deep and superficial colonies. The gelatin is not liquefied. Stick cultures in gelatine show a diffuse white growth along the line of inoculation. Slant colonies on agar and grown in the incubator for twenty-four hours show moist, bluish, transparent growths. Blood serum is not liquefied. Glucose agar stick cultures show growth along the line of inoculation but no liquefaction or gas formation. On potatoes in the incubator after twenty-four hours only a very light shiny growth hardly visible appears, which in three to four days becomes yellowish brown and at the end of a week much heavier and deeper. In bouillon there is a diffuse cloudiness. with a slight precipitate, but it does not give the indol reaction. Litmus milk is reddened but not coagulated. It stains well with the analine dyes, but is not decolorized by Gram's stain.

It is pathogenic to mice, rabbits, and guinea pigs when injected intravenously, but only causes temporary loss of weight when given per rectum. In no case were they able to produce, in animals, typical lesions of dysentery resembling those found in man, the nearest result being that found in guinea pigs, in which they obtained marked hyperemia and local hemorrhagic infusion into the intestinal mucosa. SHIGA inoculated himself subcutaneously in the arm, producing a violent local reaction; and ten days later his blood showed an agglutinating reaction to the bacillus.

They also called attention to the fact that the greatest number of bacilli are found at the height of the disease when the stool is almost entirely blood and mucus, it occasionally being possible to grow it in pure cultures on plates inoculated from fresh stools, only a few cocci being present. As the stools from the patients experimented upon became more feculent and contained pus a great variety of organisms appeared, ten of which being isolated gave negative results with blood serum.

The blood serum from cases of typhoid, beriberi, chronic gastritis and chronic diarrhea gave negative results with the bacillus.

SHIGA'S bacillus is probably identical with that which FLEXNER and STRONG found in their cases of acute infectious dysentery in Manila, CRAIG at the Presidio, San Francisco, and KRUSE in Germany.

As already stated the bacillus can be isolated from the mucous discharges from the intestine at postmortem and from the retroperitoneal glands. If guinea pigs are fed on cultures of the bacillus (bicarbonate of soda having previously been given), at the end of two or three days slight diarrhea appears, and occasionally small amounts of blood and mucus. If now the feeding is discontinued, the animal recovers its health completely, but if killed while the blood and mucus are present, the large intestine is found to be injected and swollen, the mucosa covered with mucus and the retroperitoneal glands enlarged and hyperemic. If the stomach contents of a dog are rendered thoroughly alkaline, and then fresh bouillon cultures injected through a tube, the animal dies within a few days and the upper part of the intestine is found involved in a much more severe degree than in the previous case, but in neither are we able to produce changes similar to those in man.

Cats can be fed large quantities of bacillus dysenteriæ with no results. Two cats and two monkeys were each given purgative doses of croton oil and the stools thoroughly examined for bacillus dysenteriæ, but in no cases were any found, and their blood at the end of ten days did not agglutinate cultures of bacillus dysenteriæ. Other drugs were tried on other animals with the same result.

When pure cultures are injected intraperitoneally the animal dies in from ten to twenty-four hours with symptoms of peritonitis. The autopsy shows a large amount of fluid in the abdomen, and the liver, peritoneum and other organs are covered with a fibrous exudate. The mesentery is injected and small hemorrhagic spots can be seen in the large intestines. The retroperitoneal and inguinal glands are swollen and injected. The blood in the large vessels is dark and clotted. The organs, swollen and conjested, show acute parenchymatous changes.

When cultures are injected subcutaneously there is marked local reaction, and the animal dies in from forty-eight to seventy-two hours. The organs show practically the same changes as when given intraperitoneally with the exception of the abdominal effusion and exudate. There is general involvement of the lymphatic glands. The organism can be isolated from the heart blood, the liver and the spleen.

Animals that survive subcutaneous inoculations show agglutinative reaction to the bacillus. STRONG and MUSGRAVE inoculated Manila ponies with cultures, subcutaneously. There was a violent local reaction and the temperature rose to 103° to 104°, and occasionally to 108°. The animals refused to eat and appeared acutely sick. At the end of ten days their blood reacted with bacillus dysenteriæ.

In human beings coming to necropsy from this disease one notices marked differences from those found in animals. Upon opening the abdomen one first notices that there is a congestion of all the mesenteric vessels, but especially of those supplying the large intestines. The mesenteric glands are swollen and hyperemic but not necrotic. When the large intestines are opened, the intestinal wall is found to be thicker than normal and is markedly congested, puffy, swollen and edematous. The mucosa is covered by a necrotic layer of mucus mixed with red blood cells, leucocytes, disintegrated and granular cells and bacteria. If this layer is scraped away the mucosa is seen to have undergone extensive coagulative necrosis. The submucosa is intensely injected and covered with small punctate hemorrhages. Microscopically, sections of the bowels show congestion, leucocyte infiltration and areas of coagulative necrosis.

The mucosa and submucosa show marked degenerative changes. In less severe cases, only the descending colon and sigmoid flexure may be involved. The small intestine is affected for from ten to fifteen centimeters above the cecum, gradually fading away into normal tissue. The changes are the same as found in the large intestine. The spleen, the liver and the kidney do not show marked changes except after the disease has continued for some time. Cloudy swelling, congestion and fatty infiltration are then often found. The lungs show acute edema and conjestion, the stomach in a few cases the changes of an acute catarrh.

The onset of this disease is generally very abrupt, the period being from twenty-four to forty-eight hours, rarely longer. The patient may go to bed feeling quite well, but awaken toward morning with an intense desire to go to stool. At first the stool contains feces with very little or no blood, but within a few hours the fecal matter disappears, and it consists entirely of a few strings of mucus tinged with blood. During the day he may have from fifteen to forty stools. During the next few days the desire to go to stool becomes more frequent, and he is obliged to remain on the stool all the time.

There is intense pain in the abdomen with tenderness and griping. There is pain all over the abdomen on deep pressure, being especially noticeable along the ascending colon. At the end of from three to seven days, the stools either become less frequent and the patient passes into convalescence or the stools increase in frequency, he loses complete control of the sphincter with involuntary passage of feces and urine and gradually dies from exhaustion.

The temperature throughout may be quite low, never running above 100° or 101°, but it may reach 105° in rare cases. Just before death there is usually a fall to subnormal.

The pulse in favorable cases varies between normal and 110, but may reach 150 or 160, when it is generally very weak and running. Death is due to cardiac exhaustion.

Cardiac complications are rare, but in severe cases the beat is rapid, weak and irregular. Nausea and vomiting occasionally occur, but rarely at the onset. There is excessive thirst.

Nervous complications are rare but are generally headache, delirium and convulsions, though coma and uremia may occur at any stage.

The blood is negative. The blood serum in all cases shows an agglutinating reaction to bacillus dysenteriæ. In from one to ten days after the onset of the disease dilutions of one to ten, one to twenty, and one to forty should be made.

In the early stage of the disease there is usually an apparent increase in the reds to between five million and six million, but in the latter stage they decrease to about three million one hundred thousand, due to loss of fluid and blood through the discharges. There is rarely any leucocytosis, but when it does occur, it is of the polynuclear variety, differential counts showing normal proportions. The hemoglobin follows the course of the red cells very closely.

Recovery in the most severe cases of this disease is rare, but when patients do recover, the disease is followed by great debility and loss of weight, varying from ten to thirty-five pounds. In about one-fifth of the cases death occurs from the fifth to the sixth day, but in a majority from ten to fourteen days and occasionally as late as the tenth week. One attack of the disease does not give immunity from a second attack, as persons have been known to have as many as three to four at intervals of from five to fifteen months. In favorable cases convalescence is generally well established by the end of the second week.

The treatment of this condition is purely symptomatic as no known remedy seems to have any effect upon the course of the disease.

TRANSACTIONS.

WASHTENAW COUNTY MEDICAL SOCIETY.

STATED MEETING, ANN ARBOR, JANUARY 21, 1902.

THE PRESIDENT, FREDERICK G. NOVY, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR WALTER E. GRIFFIN read a paper entitled "Specific Dysentery." (See page 109).

DOCTOR DOCK: I was very glad to hear DOCTOR GRIFFIN'S paper, because he gave in a very concise and complete form a graphic picture of bacillary dysentery. It is very interesting to notice the development of our knowledge of this disease, because we have discovered, since the investigations that DOCTOR GRIFFIN described began, some of the peculiar conditions of diseases classed as dysentery. This term never should have been more than a clinical expression, and we find that the term as it was originally used, does not apply to the cases we have recently included under it in practice. From now on the term will be more and more applied to the form DOCTOR GRIFFIN has described. It is interesting to observe that the studies in bacillary dysentery have cleared up a great deal of ignorance regarding dysentery. There was a time when everyone had the idea that in dysentery, and especially in tropical countries, the ameba was the cause. But the amebæ were not found in one particular form of disease, the bacillary form, though they all had one thing in common, namely, ulcers of the colon, and so the suggestion was made to call these cases amebic colitis. It would hardly be profitable to go into the clinical description of cases of amebic dysentery. Unlike the bacillary cases we find that the patients as a rule have an extremely chronic disease, from which they may die as a result of the first attack, but in which there is a remarkable tendency to chronicity, and at the same time to ulcers that are hard to heal. Along with the study of the ameba came the accumulation of facts showing the difficulty of proving that the ameba is really the cause of the disease, and notwithstanding the large amount of work that has been done, I think we are still unable to say that it is the cause of the disease in which we find it in such large numbers. It is hardly profitable to go extensively into this. It would perhaps be more profitable to speak of a recent case here. The patient was admitted to the hospital about a month ago, with the history of diarrhea lasting three or four months. The patient had not been out of the county since 1892, and then he was in Chicago. He has never been sick before. He drank water that he claims to be the best in the county. By that I suppose he means that it tastes good and is free from visible contamination. The microscope showed in his stools amebæ having the same characteristics as those we find in the South in typical cases of amebic colitis, and in enormous numbers, so that, for instance, in a tiny piece of mucus there were three or four hundred amebæ, the whole field being covered as thickly as with pus corpuscles in pus. The case was interesting as showing the occurrence of amebæ in a locality where they had not hitherto been found and showing that the conditions may occur sporadically, so that we may have isolated cases in any part of the country, far away from the tropics. The condition is especially interesting to me on account of my early studies in dysentery, and on account of the fact that epidemics of dysentery have been long noticed in Michigan, I have always been paying especial attention to cases of diarrhea, and yet this is the first case in which I have found the genuine dysentery amebæ. In one case I found amebæ, but they differed from other amebæ. In the first place, they did not contain red blood cells. In the second place, they were rather smaller than the genuine dysentery amebæ, and they had certain differences in their motion. These were found in a case of chronic diarrhea, secondary to carcinoma of the rectum. They were not found coming away in large numbers, as we find them in the amebic colitis. The further study of the case made by DOCTOR GRIFFIN showed that the pus from the patient's bowel had the same infective power for cats that has been shown in other cases. Cats treated in this way were attacked with slight diarrhea, with blood in the stools, and small ulcerations. Not very striking examples, to be sure, but our observations were necessarily limited to a few animals.

DOCTOR BLAIR: In regard to the patient of whom DOCTOR DOCK has just spoken, there was one point in the history of the case which I wish to mention. The man came to me more than a year ago and spoke of having the same difficulty. I may have gotten the history wrong. Considering the history, I did not feel that it was a case in which treatment would insure satisfaction. On the contrary, after I had examined him I was suspicious of carcinoma higher up than in the rectum, for I could not reach anything of the kind on digital examination. I shall watch with interest the future history of the case to see whether there are other developments than the amebic dysentery. I confess the finding of the amebæ was something unlooked for by me.

DOCTOR ARNEILL: I have nothing to offer on the subject in general. I made the examination with a speculum and found an enormously enlarged rectal valve. This is often given as an explanation for obstipation, and now it is given in connection with dysentery.

DOCTOR WESSINGER: I was particularly impressed with the fact that the mortality in this disease is so high in the Philippine Islands. I wish to ask DOCTOR GRIFFIN if this high rate of mortality prevails also among the natives?

DOCTOR GRIFFIN: It apparently does. We have not had a chance to study very extensively the disease among the natives, but SHIGA reports an epidemic in which twenty-one deaths occurred out of twenty-eight cases, and I think I saw only three or four cases in natives, all of whom died.

DOCTOR DOCK: The mortality in all cases properly spoken of as dysentery is high. I brought out that point in a discussion on the subject in this society many years ago, and the statement seemed to be received with a great deal of incredulity and yet the fact remains that bacillary dysentery is very fatal. With amebic dysentery the mortality probably is never less than fifty per cent. A large number of the cases in the Civil war were amebic and the fatality there was large. In the limited experience that I have had the mortality was about seventy-five per cent. You will find that a number of cases apparently cured, will go somewhere else and, having an exacerbation of the disease, die. Whether due to Shiga's bacillus, the ameba, or whatever cause, it is one of the most fatal diseases one can find, and the outlook for treatment is extremely poor.

DOCTOR GRIFFIN: I should like to say that in 1899 only one-third of the number of patients treated in the hospital were cured. The other two-thirds were either taken home or died and it is reported that our death rate was over fifty per cent.

DOCTOR NOVY: The mortality in many localities is seventy-five or eighty per cent. I might also add in this connection a fact that is not known as yet, but which will appear shortly, and that is that a man at the Rockefeller Medical Institute has been engaged during the past year under the direction of DOCTOR FLEXNER, in studying the disease especially in this country. As a result of his work, an identity has been established between American dysentery and the Asiatic; that is, the Shiga-Flexner bacillus is found in this country the same as it is in Japan.

DETROIT MEDICAL SOCIETY.

STATED MEETING, FEBRUARY 19, 1902.

THE PRESIDENT, DELOS L. PARKER, M. D., IN THE CHAIR.

REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR WILLIAM M. DONALD read a paper entitled "Serum and Lymph Therapy Considered from a Clinical Standpoint." (See page 104).

DOCTOR DUFFIELD: Clinical tests have been made by me in several cases. Koch's tuberculosis serum I myself have used for four years. I selected four patients who were well advanced in the second stage, showing cavities and for whom there was little hope of recovery. I corresponded freely with PROFESSOR KOCH, who advised me to push the serum and supplied me with some of the product which I used, and, strange to say, these patients kept getting better. They are still living and growing stronger. I am rather in favor of his solution of tubercle bacilli and find that it acts very well indeed. As regards the antistreptococcus serum, in my hands it has done very well indeed. In one case of bronchopneumonia which seemed hopeless, eight bottles of this serum were given and rapid improvement ensued. In less than a year's time the patient began putting on flesh, and has since made a good recovery. As regards the clinical use of the antidiphtheria serum, I think sometimes we are led astray by reports that come from the health board. Recently I took a culture from a throat and soft palate, from which the various solutions like peroxid of hydrogen, limewater, et cetera, would not remove the membrane. Two cultures remained, and were sent to the health office but no blood bacilli were found. The nebula stayed whitish and there was a bluish membrane. I tried the effect of a dose of antitoxin. In a few hours the membrane had all disappeared and the case went on to recovery. The fever was not at any time higher than 99°. No return of the membrane occurred. I think oftentimes the use of diphtheria antitoxin as a preventive is indicated. We have found that injections of this preparation become ineffectual after three or four weeks so that patients must undergo reinjection in order to insure against diphtheria.

DOCTOR MASON: As far as I have been able to observe I have found that the diphtheria serum is the only one that can be depended upon. At Harper Hospital I noted the effect of the antistreptococcus serum, but failed to find any results from that serum. I noticed that when the antidiphtheria serum was given early and in large doses the desired result invariably followed. DOCTOR DONALD said nothing of the nuclein solution. I have had occasion to note the effect in two cases in which the nuclein solution was used. It is claimed that the nuclein solution increases the leucocytosis. In two cases of septicemia that I saw, it accomplished much. There was an increase in the white blood cells, which was demonstrated by the microscope. Previous to the time the solution was employed the cases had not been progressing favorably, but after the solution had been used about ten days the blood was examined again and there was an increase in the white cells.

Doctor Hirschman: I should like to mention the serum which has been elaborated by **Doctor Calmet**. He had so much faith in his serum that to demonstrate its action he allowed poisonous serpents to bite him in order to show that he would not be poisoned.

Doctor Shurly: In reference to the goat serum, I had an opportunity to use that some years ago in ten cases of incipient tuberculosis and I can report that after a period of about a month with very carefully administered hypodermic injections, gradually increased in strength, the patients seemed to get a little worse. It had no effect at all in a beneficial way. The problems of immunity which we meet in relation to these sera are the most fascinating in the line of experimental investigations which are being carried out at the present time. There seems to be among a great number a hazy idea of some detrimental effect that may come from using these antitoxins.

Doctor Ives: I am surprised every week to find intelligent people who do not believe in vaccination. Even in our medical colleges many students do not want to be vaccinated. I have wondered whether the fourteen gentlemen who contracted smallpox at the Detroit College of Medicine a few years ago were vaccinated. It seems to me that they could not have been. We all know that smallpox has been wiped out of Prussia and Germany on account of general vaccination.

Doctor McGraw: The student who died was not vaccinated; some of the others had been vaccinated a long time previously. I have known of children being vaccinated again and again with virus which reacted on other children, but failed to react in these exceptional cases. After being vaccinated, these children contracted smallpox. There is a peculiar kind of immunity that we establish sometimes with vaccination. I know one person who after being vaccinated about a half dozen times as a child, with no effect, had smallpox and recovered. There is that temporary immunity which is a peculiar problem and is worth studying. Now as regards Calmet's serum, I have tried it, and never as yet have had any results whatever. As regards the rabies, very few people who are bitten by mad dogs would take the disease anyway; it is therefore difficult to tell whether they were benefited by the lymph or whether they would not have taken the disease. This whole question seems to me in its infancy and the hope of medicine lies in these new elements of science—in the study of the *x*-rays and these lymphs and sera. I believe, that while as yet there have been results in only a few cases, the time will come when these results will be multiplied and we will succeed in cases which we cannot now control. I have had very few cases of septicemia. I remember now one lady to whom the antiseptic serum was given day after day, and, the doctor thought, with much benefit, but I could not see that it made the slightest difference in the course of the disease. Eventually she recovered. It is not very easy to tell wherein the results differ. It is a very difficult thing to say what is the effect of such a serum and what is not. When we obtain uniform results we can speak positively, but while the results are varying we must have further study and further experience.

DOCTOR DUFFIELD: A woman who had been bitten on the hand by a mad dog was subjected to the serum treatment. She did not have rabies, and of course there is a strong probability that she would not otherwise have taken the disease. I have received a report of a number of cases treated and there was a large percentage of recoveries, but that did not prove that the persons might otherwise have had the disease. I am inclined to think that DOCTOR DONALD has put the subject very concisely and properly by cutting it down to one serum and one lymph.

DOCTOR WRIGHT: One subject in particular interests me, the subject of immunity. I think that perhaps our college professors are somewhat careless in thoroughly impressing upon the minds of students through their college career the importance of vaccination. Just this afternoon I had occasion to examine a gentleman for life insurance who is a teacher in a public school and has never been successfully vaccinated. He says that his conception of it is "merely to comply with the law." There are too many people who entertain the idea that vaccination is necessary because there is a law that requires it. We must make it a duty to correct these misapprehensions in the minds of the public. There is one particular instance in which I have been interested. A lady living here in the city whom I have attended a number of years has a little child eight or nine years of age. The mother has never been successfully vaccinated. This child has, to my knowledge, been vaccinated five different times, without success. Is this safeguard of immunity transmitted from mother to child? I believe that child is immune to vaccination.

DOCTOR DAVIS: I had a recent experience with the antistreptococcus serum in a case of scarlet fever, wherein I had a culture made on the membrane, which showed that the streptococci were in great abundance. I gave the initial injection of ten cubic centimeters, with the result that the temperature, which was 104°, declined 2½°. On the following day I gave a second dose and the temperature became normal. The pulse decreased from 140 to 115 after the initial injection, and after the second dose numbered 84. It seemed quite rational to treat this case in this way because it was an infection from the streptococci.

DOCTOR DONALD: In puerperal septicemia a certain doctor formed the habit of using antidiphtheria serum because he thought he derived better results from it than from the antistreptococcic serum. The whole subject is, of course, in its infancy; we are simply learners. I omitted the mention of the Calmet serum because I overlooked it. The students at the college first took smallpox and many of them had not been vaccinated for years, while some had been vaccinated shortly before they contracted the disease. We know that smallpox may be contracted a second time. The case of an Irish girl who came to Troy, New York, and who during the epidemic contracted the disease a second time, and died from it, is an illustration that even smallpox itself is not a protection. I sometimes think when I see this covert position of the public that we are entirely too optimistic in the matter. I hardly see why we should force this upon the public. If they want smallpox, why should they not have it? It is true, many realize the necessity for vaccination and feel the truth of our statement that it is a protection, but in many cases the public show an undercurrent of opposition to the whole subject of vaccination.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
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AND
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Differential Staining of Blood Films and Malarial Parasites.—Wright (*Journal of Medical Research*, January, 1902) has devised a new stain. He considers it superior to Jenner's because it more sharply differentiates the nuclei and cytoplasm of the lymphocytes and large mononuclear leucocytes, as well as the granulations of the leucocytes in general. The author claims that it also gives a differential staining for the chromatin and cytoplasm of malarial parasites.

The staining fluid is prepared as follows: One per cent of methylene blue is added to a one-half per cent of aqueous solution of sodium bicarbonate in which the bicarbonate is thoroughly dissolved. This mixture is steamed in an Arnold sterilizer for one hour, counting from the time "steam is up." When cold the mixture is poured into a large dish or flask, and a one to one thousand aqueous solution of yellow water soluble eosin is added until the blue color is lost, and a purple color appears, with a scum of a yellowish metallic luster on the surface. During the addition of the eosin the mixture should be constantly shaken or stirred. When the addition of the eosin is complete a finely granular black precipitate appears in suspension in the mixture. Remove this by filtration without washing, and when thoroughly dry add to pure methylic alcohol to saturation. Filter this saturated solution, and to the filtrate add twenty-five per cent of methylic alcohol. This is the staining fluid.

The technic for using the stain is as follows: (1) Make films of the blood, spreading thinly and allow them to dry in the air; (2) cover with the staining fluid for *one minute;* (3) add water, drop by drop until the mixture becomes semitranslucent, and a yellowish scum forms on the surface. Allow this mixture to remain on the preparation for two or three minutes; (4) wash in water until the film has a yellowish or a pinkish tint in its thinner portion; (5) dry between filter paper and mount in balsam. J. R. A.

Disturbance of the Function of the Pancreas.—These may be recognized by the appearance of an alimentary glycosuria. It has been shown that besides its digestive power, the pancreas possesses another important function, that of exerting a powerful influence upon the metabolism of sugar in the body. This is probably dependent upon an internal secretion, which Opie thinks has its origin in the lymphoid islands of Langerhans. Regarding the presence of fat in the stools, as an indication of pancreatic disease, Oser says that we may positively assume only that disturbed digestion of fat *may* be an important symptom in pancreatic disease.

Fat may be found in the stools in jaundice and diarrhea. The author considers in detail the diagnostic features of acute pancreatitis, pancreatic hemorrhage, chronic pancreatitis, pancreatic lithiasis, tumors of the pancreas—cysts and malignant growths. He concludes that although we possess no diagnostic symptom of pancreatic disease (unless the demonstration of fat-splitting ferment in the urine be such in acute pancreatitis) clinical and pathological observations have taught us certain combinations of symptoms which justify a diagnosis in various forms of pancreatic disease.

Acute pancreatitis should be recognized in many instances. Its chief symptoms are sudden pain of an agonizing character, more severe than that of biliary colic and localized in the epigastrium; vomiting of mucus, frequently bile stained. There is usually profound prostration, with rapid collapse and death in three or four days.

Chronic Pancreatitis is to be suspected under the following conditions:

(1) Instances in which glycosuria develops in an individual with chronic cholelithiasis; (2) in cases of glycosuria in association with cirrhosis of the liver; (3) in glycosuria in the course of hemochromatosis; (4) in glycosuria following attacks suggestive of pancreatic colic.

Pancreatic lithiasis is recognizable when calculi are found in the stools.

Cysts of the pancreas are usually to be recognized on account of their location.

Primary cancer of the pancreas is often latent. The presence of obstructive jaundice with distended gall-bladder and rapidly developing cachexia, in association with little or no hepatic enlargement, is suggestive of this affection.

Fatty stools, in absence of diarrhea or jaundice, together with indication of interference with the digestion of albuminoids, are valuable confirmatory evidence of deficiency or absence of the pancreatic secretion. J. R. A.

The Relation Between Bovine and Human Tuberculosis.—This extremely interesting subject, about which there has been so much discussion since Koch's startling statements at the British Tuberculosis Congress, is discussed in an exceptionally able and scientific manner by Theobold Smith, a pioneer in these investigations (*Medical News*, February 22, 1902). He states that we are not justified at present in accepting the sweeping and hasty inferences drawn by Koch from his experiments, that the bovine bacillus cannot invade the human body. In the main Koch is correct, but the great range of species, occasionally invaded successfully by tubercle bacilli, soon convince us that exceptions may occur, and the next step is to discover how often and under what conditions we may look for them. Smith states his provisional conclusions as follows:

(1) There is no evidence to show that bovine tubercle bacilli may indiscriminately infect the human subject.

(2) There is some evidence that bovine bacilli have been isolated from human beings, that the successful transfer is uncommon, and that it depends on certain conditions, which need careful clinical and pathological study.

(3) The evidence that such transmission takes place must be based on the isolation of tubercle bacilli having the characteristics of the bovine variety.

The evidence at hand suggests the necessity of still maintaining periodical rigid inspection of dairy herds, looking toward the elimination of all animals with suspicious disease of the udder, or tending toward emaciation. J. R. A.

Intermittent Claudication.—Osler (*Montreal Medical Journal*, February, 1902) reports two cases of this very interesting and apparently rare condition, which, although very obscure, is one that has been well recognized by veterinarians, especially the French. As an example, the author cites Bouley's paper on "Claudication Intermittente," which describes an affection of the horse. After being driven for fifteen or twenty minutes the animal stopped, one or both hind legs became stiff, and soon it was unable to stir. In from one-half to one hour it recovered and was able to go on comfortably for fifteen minutes when the attack recurred.

Postmortem examination in such cases shows blocking of the artery of the affected limb with a clot, or when both hind legs are involved, thrombi in the abdominal aorta, or aneurisms.

Charcot (1856) was the first to describe this affection in man. Erb has reported twelve cases of the condition and calls attention particularly to its association with arteriosclerosis and classification of the arteries of the legs. Osler never recognized the condition clinically until the cases reported came under his observation.

Case I.—1899—A male, aged thirty-one, complained of vomiting and pain in abdomen. He had a pulsating tumor in the epigastrium, gave a history of syphilis, and presented evidence of general arteriosclerosis. Wiring and electrolysis of the aneurismal sac was followed by notable improvement, but the man returned nine months later with well-marked intermittent claudication. He now complained that after walking a certain distance his legs would give out completely; that he could not move another step, and had to sit down. After resting a few minutes he could then go on again. Accompanying this there was a sensation of dead, heavy weight in legs, but no cramps. This case is an example of the anurismal cause.

Case II.—1901—A female, aged fifty-five, complained of pains in the right leg, difficulty in walking, heart affection, attacks of intermittent lameness, with numbness and tingling in the feet, and marked vasomotor disturbance. Examination revealed mitral stenosis and absence of pulsation in dorsal arteries of feet. This case presented the typical symptoms and is an example of the more frequent cause, namely, arteriosclerosis.

D. M. C.

SURGERY.

BY HENRY O. WALKER, M. D., DETROIT, MICHIGAN.
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Notes on Fifteen Cases of Operation for Internal Derangement of the Knee-joint.—Cotterill, of Edinburgh, writes under this title (*London Lancet*, for February 22, 1902). The subject is interesting because of the fact that the rapid advancement of surgery has not until recently disturbed the conservative treatment of injuries of the knee-joint.

The author believes that the accident occurs when the knee is partially flexed and is nearly always the result of force indirectly applied.

The kneeling position and chronic synovitis are predisposing causes, while a slight accident may result in a serious injury.

Most observers believe that the internal cartilage is more frequently injured than the outer, though a few hold to an opposite opinion. The displacement in all cases is toward the centre of the joint.

When the cartilage is torn it is not infrequently split for its entire length, the internal portion being carried in toward the crucial ligament. Separation of the anterior attachment is a frequent occurrence or it may be torn across at any point.

As a symptom great stress is laid on the inability to fully extend the knee, but it can be completely flexed with little pain before effusion into the joint has taken place. This condition is exactly reversed in case of strain.

The difference between injury to the cartilage and a loose body in the joint should be noted. In the latter the pain shifts from place to place according to the position of the body. A persistent symptom of injury to the cartilage after all others have disappeared is pain across the front of the knee by pressure, when it has been fully extended.

The treatment recommended for tearing of the internal cartilage is manipulation under anesthesia, flexing, rotating outward and then extending. This allows the cartilage to slip back into place. Flexion and eversion open up the space between the tibia and the interal condyle. Inversion will bring them together and separate the external surfaces. The relation of the torn cartilage to the internal lateral ligament may require internal rotation to replace it. Sufficient time must be given to allow the parts to heal. Several weeks of absolute rest to the injured joint should be considered time well spent, as recovery may be complete provided this treatment is faithfully employed in the first injury. Recurrent injuries are not likely to be followed by good results without operation. Patients under middle age who have frequent trouble with the knee-joint should be operated upon, provided they expect to lead an active life, are in good health, and are free from rheumatic and tubercular tendencies.

The operation.—A curved incision is made through the skin and fascia with a straight incision through the capsule above the cartilage. The whole or a part of the cartilage may be excised according to the extent of the injury. Recovery may be perfect even for such active exercise as football. Drainage of the joint is not only considered unnecessary but dangerous. Strict asepsis is necessary to success. The patient may begin to walk with crutches in three weeks but should not engage in active labor for three or four months.

In the *Lancet* for March 15, 1902, appears a paper by Allingham on "Internal Derangement of the Knee-joint," in which he has presented a series of cases in tabulated form giving the age, sex, date of operation, and the results.

Fifty-nine cases are reported. Thirty-four were for injury to the internal semilunar cartilages. Twenty-two of these were removed wholly or in part and twelve were fixed in place by sutures. Only one external cartilage was injured, and that was removed. There were twelve cases wherein loose bodies were found and romoved. Chronic traumatic and rheumatoid arthritis were found in seven, and only three of the joints explored were found to be in a normal condition. Attention is called to the fact that some cases are relieved by operation even when no lesion is found to account for the pain and discomfort, and the author suggests as an explanation a comparison with certain conditions found in the peritoneum.

The history of damage to the semilunar cartilage begins with injury. There is pain always at the point where the cartilage is injured; there is no creaking of the joint and no foreign body can be felt. Loose bodies in the joint may present the same symptoms but the point of pain will shift with the change of position of the foreign body.

Careful treatment, as follows, should always be preferred to operation in primary injury. The knee should be splinted from one to three weeks and then subjected to massage, passive motion, restricted exercise, rest to heal the damaged parts, and after treatment to restore the surrounding tissues to a normal condition.

If recurrence of the injury takes place the author advises an operation. He prefers a vertical incision, which should be made one inch to the inner side of the patella and carried one inch below the head of the tibia, such an incision having the advantage that it can be prolonged upward to explore the synovial pouch above the patella when necessary. The smallest bleeding vessels should be tied to secure a perfectly dry joint. No antiseptic wash or drainage should be used. Plain boiled water may be employed when necessary to float foreign bodies from the joint; and to use the finger for exploring purposes is not only permissible but necessary in some instances. Loose or torn cartilages should be removed rather than fixed. The sutures that close the wound should include the cut synovial membrane.

The treatment following operation is the same as that for recent injury. Massage and passive motion are carefully begun at the end of the first week. The cases that tend to ankylosis should be persistently treated under anesthesia. The results under strict asepsis are very favorable—in most cases complete recovery. The dangers encountered are profuse secretion into the synovial sac or stiffness when the treatment is not thoroughly carried out. C. G. D.

GYNECOLOGY.

BY REUBEN PETERSON, A. B., M. D., ANN ARBOR, MICHIGAN.
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Gonococcal Peritonitis.—Frank and Koehler (*American Journal of Obstetrics*, March, 1902), from a study of cases in their own practice and from postmortem findings and investigations, have come to the conclusion that the gonococcus in fresh inflammatory pelvic cases is a dangerous factor and even in very old cases may become so, and may by its influence cause the death of the patient. The virulence and toxicity of the same organism is known to vary widely under different conditions and influences. Quantity as well as the quality of the poisonous organism also must be considered. For this reason it is not wise to underestimate the possibilities of such a pathogenic organism as the gonococcus. While it is true that this germ is a favorite of mucous membranes, columnar epithelium being less resistant than pavement epithelium, the gonococcus can invade other tissues, such as the synovial membranes and tendon sheaths, also the endo- and pericardium. Lang and others have shown that it can produce metastatic abscesses in muscles and subcutaneous connective tissue.

Recently Cushing (*Johns Hopkins Bulletin*, Number XCVIII) has reported two cases of gonococcal peritonitis, and has called attention anew to the possibility of this inflammatory complication. According to the reporter, the history of these two cases sets at rest all doubt as to diffuse peritonitis being caused by the gonococcus. Frank and Koehler have already reported a case of acute suppurative peritonitis of gonococcal origin coming on during the menstrual period. Similar cases are reported by Challon and Mermet. The patient was a seventeen year old prostitute, who had been in the habit of having intercourse during the menstrual period, a vaginal tampon being used to conceal her condition. A bilateral gonorrheal pyosalpingitis was the result of this practice, necessitating the removal of the right tube, the abdominal cavity being soiled by a small amount of pus from the left broad ligament. The patient died of septic peritonitis in three days.

The only organism found in the pus removed at the autopsy was the gonococcus of Neisser.

In the case of a colored woman who died from sepsis resulting from a large tubal abscess, the gonococcus was found in the pus and was undoubtedly the cause of the diffuse peritonitis. The case was interesting from the fact that the tubal lesions had existed some time and that the pus had retained its virulent characteristics. A septic embolus, located at the bifurcation of the vessels of the leg, gave rise to gangrene. There was also an abscess of the left parotid gland. Bacteriologic examination made of the pus and blood from these places showed gonococci in abundance.

The writers conclude by calling attention to the extensive activity of the gonococcus in regions formerly considered immune to its infection. The toxin of the gonococcus, according to Metschnikoff, has an undoubted deleterious effect upon the cord, clinically shown by the occurrence of neuralgias. Wasserman's investigations show that the toxin of the gonococcus has marked phlogistic powers and is bound during life to the bodies of the cocci, and its liberation after their death may produce an active suppuration, the bacteria themselves disappearing by disintegration.

OBSTETRICS.

By THOMAS STONE BURR, A. B., M. D., ANN ARBOR, MICHIGAN.
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Significence of Fever During the Puerperium.—Moran (*American Journal of Obstetrics*, February, 1902) presents interesting statistics concerning the fever of the puerperium. He notes the analogy between surgical wounds, and the parturient tract after labor. The maximum temperature for normal cases for the first five or six days is 100°. Infection is autogenetic or heterogenetic. The former is due to saprophytic germs. The latter to pathogenic organisms. Examination during labor and failure to use rubber gloves increase the morbidity.

Of three hundred and eighteen cases at the Columbia Hospital one hundred and eighty were examined without gloves during or after labor and one hundred and thirty-eight were not examined. Of the former twenty-two per cent had a rise of temperature above 100°, of the latter only nineteen per cent had a rise above normal.

Of two hundred and thirty-seven cases delivered with gloves one hundred and ninety-seven were examined and forty not examined. Twenty and seven-tenths per cent of those examined had a temperature above 100°; and seventeen and five-tenths per cent of those not examined had rise above normal.

Tables are given showing the morbid condition to be due to general conditions as well as local infection. The latter condition is twice as frequent in the series wherein examinations were made, and is lower in cases wherein gloves were used.

The morbidity is lessened by observing the following points: (1) Careful aseptic technique. Regard the parturient tract as a surgical wound; (2) restricting or avoiding internal examination, cultivating external diagnosis. In examining separate the labia to prevent contact of finger and vulva; (3) knowledge of the mechanism and conduct of labor, with appreciation of timely interference; (4) refraining from haste or violence in expulsion of the placenta; (5) avoiding early rupture of the membranes.

Consider every case of fever during the puerperium septic until positively excluded by thorough examination.

Effect of Suspension Operations on Pregnancy and Labor.—Jacobson (*American Medicine*, January 11, 1902) discusses the effects of ventral fixation and ventral suspension on subsequent labor and reports a case. This was in a woman of the age of twenty-one years whom he delivered at full term with the forceps after a labor of about six hours. She had previously had the uterus suspended to the abdominal wall by the Fowler method of making use of the urachus for the fixation. From the gynecologic standpoint these operations are considered by most authorities as quite satisfactory; but it is an entirely different matter from an obstetric standpoint, and this latter relation can be determined only by further study. Among the disadvantages of ventral suspension may be mentioned the marked retraction of the scar due to the dragging uterus; the constant pain in the hypogastrium; the retraction of the cervix into the pelvis; the failure of the anterior portion of the uterine body to expand, and the thinning of the posterior part of the uterus; the production of abortion or premature labor, and the prolongation of the normal period of gestation. The difficulties during labor, on the other hand, may result from the inability of the thinned-out posterior segment to expel the fetus. The proper expansion of the cervix is hindered by its abnormal position high up in the pelvis and in the abdomen; malpositions, particularly the breech and transverse, are quite frequent; the uterus in labor may tear loose from its moorings with a consequent formation of a large hematoma at the point of rupture; and the uterus itself may rupture.

In regard to the best technique to employ for these suspension operations, it may be said that the methods now in vogue may be divided into three classes: (1) Kelly's, whereby the uterus is suspended by a band, because the peritoneum and fundus uteri are approximated; (2) Olshausen's, whereby firm fixation of the anterior face of the fundus to the abdominal wall is secured; and (3) Leopold's, whereby still firmer attachment of the fundus to the peritoneum is secured by scraping off a portion of the former. It may be said of Alexander's operation that no evidence has ever been introduced showing that the operation interferes in any way with pregnancy or labor. Vaginal fixation, on the other hand, has a notoriously disasterous record and can be mentioned only to be condemned. Fertility is apparently reduced after the suspension and fixation of the uterus, but there seems to be no especial tendency to induce abortion. Jacobson concludes that Kelly's operation, or some form of Alexander's operation is to be preferred; that ventrofixation occupies an intermediate plane between vaginal fixation and ventral suspension. As a rule, we may say that pregnancy and labor are uncomplicated, since eighty-five and ninety per cent have been absolutely normal. In only twenty per cent has delivery been impossible by way of the natural passages. Even including ventrofixation in the statistics, it may still be said that obstetric results have been fairly comparable to those ordinarily met with. This, however, must be attributed more to good fortune than anything else.

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., Detroit, Michigan.
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The Worsted Skein Truss.—Hubbard (*Annals of Surgery*, February, 1902) declares that the worsted truss has many advantages over the other forms of truss. It is very cheap, easily changed, can be washed and used repeatedly until it loses its elasticity, when it is useless. It is less likely to irritate the skin, a skein makes two trusses and is easily applied. The bunch of worsted made by the looping of one end through the other, is adjusted carefully and firmly over the hernial opening. If the skein is too long it can be made proper length by rewinding. It can and should be worn night and day and when changed must be done with care, the child being on its back. The skin of the groin can be kept from chafing by frequent changing, cleanliness, and keeping the parts dry.

Factors in Infant Rearing.—Holliday (*Pediatrics*, January, 1902) says three important factors are to be considered in the raising of infants, namely, heredity, environment and food, and as so many deaths occur before the age of five years, which can be traced to error of diet, great stress should therefore be laid upon the importance of feeding at this period of life. The mother should furnish all she can of the nutrition and if the child does not thrive it should receive supplemental food, and this feeding should be upon cow's milk, modified so as to conform to the formula of mother's milk. Cow's milk should be the basis of all artificial food for bottle-fed babies, and it should be of as uniform quality as is possible to obtain. Modification of cow's milk necessitates change of the percentage of fat, sugar and mainly proteid. The great difficulty is in the management of the latter, to make it easily assimilable. A child that is not satisfactorily increasing in weight and does not show physical thrift requires a change of diet, and this change should be in the direction of some modification of cow's milk. Milk laboratories are a step in the right direction, but are not always accessible, therefore home modification seems the ideal one, that is, breaking up and recomposing cow's milk to meet the requirements of the baby's constitution. Much of the success of feeding with milk in unsanitary surroundings depends not upon sterilization or Pasteurization, but upon the purity of the milk, the care given to its modifiation, the proper instructions given to the parents in regard to handling and keeping milk, and upon the regularity of feeding. The author thinks that if the above is adhered to sterilization and Pasteurization of the milk can be dispensed with to a very great extent.

Vaginal Discharges in Children.—Caille (*Postgraduate*, February, 1902) says there are three forms of vaginal discharge in children. First, ordinary leucorrhea; second, purulent vaginitis; third, purulent gonorrheal vaginitis. Ordinary leucorrhea is found in anemic girls and is quite easily overcome by cleanliness, fresh air, and the administration of iron tonics. Purulent vaginitis is communicable from one child to another, and often produces postular eruptions and purulent ophthalmia. It is best controlled by washing with sulphocarbolate of zinc one dram to four ounces of water, and swabbing the vagina carefully with a solution of nitrate of silver, ten grains to the ounce. The gonorrheal variety is most contagious, requires much attention, and lasts often for months. The gonococci travel to the contiguous parts, making it difficult to treat. This is also best controlled by washing with the solution of sulphocarbolate of zinc and by swabbing with the silver solution.

OPHTHALMOLOGY.

BY WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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Syphilitic Ulcer of the Eyelid.—Posey (*Ophthalmic Record*, March, 1902) reports the following interesting case:

A woman, aged fifty-two years, presented herself at the clinic on account of an inflammation of her lower lid. Examination showed the lid of the right eye to be involved in an ulcerous process, which extended from a point about four millimeters from the external commissure of the lids to the junction of the outer and middle one-third of the lid. The ulcer had entirely destroyed the margin of the lid; skin, cartilage, and conjunctiva alike having disappeared in the process of inflammation. The edges of the ulcer were clean cut but indurated and its bed was filled in with white necrotic tissue. The conjunctiva of the eyeball was slightly injected, but there was no further evidence of inflammation in the eye or its adnexa on either side. The patient complained of but slight pain in the lid and there was but slight tendernes to the touch.

The patient is a hale, strong woman, the mother of seven children, five of whom are living and well. She has had no miscarriages and it is impossible to obtain information in respect to the occurrence of a primary sore. The patient had been in constant attendance at the surgical clinic for five months on account of a running sore on her head, but the eye manifestation did not appear until about six weeks before consulting Doctor Posey. Taken in conjunction with necrosis of the skull, and its characteristic appearance, the ulcer seemed clearly to be of syphilitic origin. She was given an antiseptic wash and the specific treatment pushed. The ulcer was not controlled, however, until the entire outer one-third of the margin of the lid had been entirely destroyed.

Syphilis of the lids is a rare affection and secondary, and tertiary ulcers are less common than the primary sore. As in this case the ulcerous stage may be preceded by a gummatous infiltration of the lid, which may resemble a stye, or in other cases the initial process may take the form of a small prominence like chalazia, which rapidly break down into ulcers.

The Fundi of Animals.—Johnson (*Ophthalmic Record*, February, 1902) gives an interesting account of his recent scientific investigations on the fundi of animals. Some years ago Doctor Johnson began to examine the fundi of animals, betaking himself to Jamrach's collection of animals and other menageries, and he found that the macula lutea was present in monkeys, but that it varied with each genus. Following up his clew, he discovered that every family of the mammalian order possessed a distinct appearance of its own in the eye, by which anyone seeing the fundus with an ophthalmoscope would be able to recognize not only the family but the genus of the animals. He then proceeded systematically to examine all the animals to be seen in the zoological gardens of London, Antwerp, Amsterdam, Hamburg, and elsewhere, and as a result of this gigantic labor he found many new and striking facts. For instance, he realized that certain organs, such as the pecten, was also to be found in a large number of the lower mammals—rodents and marsupials. This, of itself, was an interesting piece of evidence in support of the Darwinian doctrine of evolution; his various discoveries are to be found recorded in the proceedings of the Royal Society. The author's method of investigation is interesting. To examine the eyes of the animals it was necessary for Doctor Johnson to darken the cage, to set behind the animals with a lamp behind his head and to look through the ophthalmoscope at a distance of a half inch from the animal's eyes, for a period of not less than two hours at a time. The total time spent over each animal would vary from eight to sixteen hours. He examined the eyes of about one thousand animals, and made drawings of about two hundred and fifty, some fifty of which have so far been published by the Royal Society. In the cases of the larger animals it was necessary to confine their movements. Thus the elephants were chained down. Sacks some eight feet long were made for slipping over the bears. The closed ends of the sack were next slit with a knife and as bruin protruded his head he was promptly muzzled and lifted on to the table for the eye testing. In the cases of lions, leopards, tigers, and large cats, muzzles could not be used as they frightened the animals nearly to death. He found it advisable to cut off the whiskers of the brutes, as the touching of the whiskers during the examination made them snap. Some of the birds were induced to thrust their bills into large corks, and the fishes had to be treated gingerly to avoid their suffocation. The boa-constrictors and pythons were thrown into sacks, to circumvent their squeezing propensities, and their heads were held out of the sacks by keepers; while with wolves, beavers, otters, seals and sea-lions, nets were thrown over them, and they were twisted in the meshes.

NEUROLOGY.

BY AUGUSTUS WRIGHT IVES, M. D., DETROIT, MICHIGAN.
PROFESSOR OF PHYSIOLOGY AND ASSISTANT IN NEUROLOGY AND PSYCHOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

Neurasthenia.—In ten articles (*International Medical Magazine*, February, 1902) on "Neurasthenia," the following facts are brought forward by different authors.

Rockwell says that notwithstanding the vast amount of literature which has been devoted to the subject of neurasthenia during the last twenty years it still remains among the most interesting, as it is the most important of all those diseases, whether of the nervous system or otherwise, not immediately dangerous to life. One thing that astonishes those who see little of the condition, is the number of symptoms enumerated, and the rapidity with which nervous force can be exhausted. However, a nervous system endowed with normal strength is not readily influenced to its permanent detriment, even by prolonged mental and physical strain, while irritations absurdly slight act with astonishing energy on systems inherently weak from whatever cause, but especially when that cause be heredity. The neurasthenic has feeble powers of resistance and little by little fears of various kinds get the better of him. These morbid fears are pathognomonic and are seldom if ever encountered in serious organic lesions. The intense self-concentration of the neurasthenic on his condition differs from the anxiety of true mental alienation. Unlike the truly insane he wishes to be convinced that what he imagines is not true, and intelligent argument will wholly or partly convince him for the time being.

Brower says this is an age of therapeutic skepticism. Many doctors, learned in diagnosis and pathology, have no faith in the curative power of drugs. He does not belong to this class, and therefore gives his neurasthenic patients drugs freely and with benefit. It is an autotoxic and exhaustional neurosis, and therefore requires, first, eliminants. The bowels, skin and kidneys are usually below the standard of healthy activity, which condition the careful physician will not neglect.

Angell lays stress on the great value of educational methods. He says that when he was in Paris he visited the Bicêtre and learned how much had been done with that most hopeless malady, idiocy, by patient, persistent, educational methods alone. He was forced to the conviction that in all treatment of nervous troubles, education must play a more important part than is ordinarily believed. If this be true of organic degenerative changes, of how much greater value may education be in functional disorders of the nervous system. In hysteria and neurasthenia especially is it true that education plays an important role.

Baruch has great faith in hydrotherapy, and quotes Erb and Kraft-Ebing as saying: "In the management of neurasthenia the water treatment is of the greatest value." His records, he claims, bear the histories of many cases referred for hydropathy by leading neurologists, because the rest cure, et cetera, had failed of satisfactory results.

Sinkler says the three most important principles of treatment of neurasthenia are included under the heads of regimen, diet and drugs. The rest treatment is probably the best general method of treating these cases, and when possible this should be carried out fully in all details. The condition being hypotrophic, especial attention should be given to dietetic treatment. He says *frequent* feeding is important. The diet should be simple, nutritious, abundant and easily digested.

In speaking of the relations and distinctions of hysteria, neurasthenia and hypochondriasis, Wolf says that some of the inherent difficulties are in the fact that they all arise from a common stock, they are all engrafted on a state of mind which, whether inherited or acquired, will not pass for normal. On the somatic side we find the symptoms only coterminous with the possibilities of physical expression. No organ or tissue is exempt from liability to disturbance and just as constantly is disturbance the only demonstrable fact. When we find organic disease we are immediately beyond the limits of our subject. He tersely compares these three conditions as follows: "In hysteria we have nervous instability and disproportion between emotional affection and resulting acts. In neurasthenia we have nervous instability and disproportion between expenditure of nervous energy and resulting exhaustion. In hypochondriasis we have nervous instability and disproportion between sensory affection and resulting attention."

Syphilis a Common Cause of Paretic Dementia. — Leister (*Cleveland Medical Journal*, December, 1901) says the causes of this cruelly fatal form of insanity are variously given as heredity, overwork, high living, worry, sexual excesses, syphilis and intemperance, but at present we are coming to believe that the great majority of cases are the result of syphilis, claiming our greatest actors, shrewdest politicians, and business men. It claims ten times as many men, in whom the exalted type predominates, as women, in whom the melancholic type is most frequently seen. If this statement be true it places this malady in the same etiologic category with locomotor ataxia, in which disease from sixty to ninety per cent present a luetic history.

THERAPEUTICS.

BY DELOS LEONARD PARKER, PH. B., M. D., DETROIT, MICHIGAN.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

Electricity in Renal Disease.—Rockwell (*Journal of Advanced Therapeutics*, January, 1902) in an article with the heading "The Use of Electricity in Renal Disease," makes known the results of his experience in the use of this remedial agent for treating certain pathologic conditions of the kidney. Five cases are reported by him, in each of which one or more of the following symptoms of nephritis were present: Continued low specific gravity of the urine, lessened quantity of urea, presence of albumin and casts—both granular and hyaline.

Besides these objective symptoms of disease there were present one or more of the following subjective manifestations of impaired health: cephalalgia, pain in the back and loins and tendency to fatigue upon slight exertion.

At the outset Doctor Rockwell disclaims any intention of maintaining that serious structural changes in the kidney can be remedied by electrical treatment. To use his own words:

"It may, I think, be assumed that between functional and organic disease of the kidney, between simple hyperemia and the beginnings of those structural changes that we term Bright's disease, there is no definite boundary line that reveals itself to any of our known methods of interrogation. It may be that most of the cases that I have seen, in which great and permanent improvement was noted, were simply conditions of renal hyperemia, active or passive. It is reasonably certain, however, that if any of them could be classed as Bright's disease, they must be put in the category of inflammatory affections, affecting the tubules or stroma, rather than those more serious structural changes originating in waxy and cirrhotic kidney. I am not sufficiently optimistic to assert that the course of progressive structural changes in the nerve tissue, as in true ataxia, or the degeneration characteristic of the more serious forms of Bright's disease, can be permanently arrested and cured by this or any other known method of treatment; but I do believe that by arresting inflammatory action and congestive pressure through heightened circulatory drainage and increased filtration, by removing the inflammatory products which block up the uriniferous tubules, we can do much toward the prevention of more serious and chronic complications, and hasten the recovery of those cases which have not yet crossed the border line of incurable organic changes."

In the cases reported by the author, the remedy was applied once every second or third day and was kept up from two to seven months. In every case there occurred recovery or improvement. The method of the application of the remedy may be best told in the words of the article itself:

"In their treatment my efforts were restricted to two methods of administration.

"(1) By the high-tension faradic current. Flexible electrodes of blocked tin, three inches in diameter and covered with sponge or layers of absorbent cotton are placed over the region of each kidney and firmly bound.

"Beginning with séances not more than ten minutes in duration, they may be very gradually or quickly increased, according to the susceptibility of the patient, to three-quarters of an hour.

"The strength of the current should be gauged by the sensation of the patient, that is, it should be given almost but not quite to the point of actual discomfort.

"Mild currents are, I am convinced, of little value, and fortunately, with suitable electrodes, and properly placed, the strength that can be easily borne is very great. It is the skin which offers the chief resistance, and is the only seat of pain in the passage of the current, so that it is the epidermis only that we have to consider so far as the sensibility of the patient is concerned. When once the current penetrates the skin, its threads, if we may so speak, diffuse rapidly, and the stronger the initial force, the greater the density of these threads and the more potent their action at any given distance from the surface.

"The question then is not how weak, but how strong, a current can be administered without actual pain in order to get the requisite local effect on the internal tissues and organs of the body.

"(2) The static wave current. This was used in connection and alternation with the high-tension faradic current. It has the advantage over the last named of exceeding it greatly in frequency and tension; in enabling one to administer a current not indeed of greater magnitude, but of far greater force and rapidity of oscillation, with the minimum of sensory and motor disturbance. Indeed, currents of the highest tension and frequency seem to have neither motor nor sensory effect that are at all appreciable, yet we find as a result of these infinitely rapid vibratory disturbances a marked influence on the circulation and combustion.

"On the circulation they have been found to lower the blood pressure at the moment of application, followed by increased pressure and vascularization. As a result we get an active circulatory drainage of inestimable benefit in conditions of passive congestion. Now in the treatment of hyperemia of the kidney, our aim is to relieve the hyperemia and albuminuria by quickening its circulation. With less blood passing through the renal capillaries in a given time less fluid is withdrawn from them, and anything which heightens blood pressure and increases renal filtration relieves the burdened organ of much stress and strain. Diuretics are valuable therapeutic agents because they increase blood pressure and augment the quantity of water excreted."

HYGIENE.

BY GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

Reply of Professor E. Nocard to Professor Koch.—I have always held (*Journal of Comparative Medicine and Veterinary Archives.—Sanitarian*, March, 1902) and recently again at the Berlin Congress on Tuberculosis, that bovine tuberculosis plays but a small part in the spread of human tuberculosis; but no matter how small this part may be, it is undeniable, and it would be making a great mistake to leave it out of consideration.

Koch has not succeeded in producing tuberculosis in cattle inoculated by various methods with cultures or material from human sources. He concludes from this that cattle are refractory to human tuberculosis; that man has nothing to fear from tuberculosis of cattle; and that it is useless to take precautions against it.

With all the respect due to the illustrious savant, but with all the strength of profound conviction, I wish to say that his experiments do not justify such conclusions.

It is a principle of the experimental method that negative results, however great their number, cannot outweigh positive facts. There exist positive facts proving that it is possible to infect cattle with tuberculous matter from man. The first of these are the experiments of my eminent master, Professor Chauveau. I regret extremely that his duties prevented him from taking part in this congress. He could have presented them with the authority which belongs to a master of experimental medicine. I will endeavor to take his place and to show the value of these facts from the point of view which now engages us. Let us admit, for an instant, that cattle are really refractory to human tuberculosis: has one the right to conclude from this that the reverse is equally true? No! a hundred times, no! This would be contrary to all the principles of the experimental method. It would be, above all, contrary to facts. If experimental facts are lacking, and for cause, clinical facts abound which prove the possibility of the transmissibility to man of tuberculosis of cattle. Many have seen veterinarians who have wounded themselves while making autopsies on tuberculous cows. Some have got well, thanks to prompt and radical surgical intervention, such as our colleague Jensen, of the Veterinary School of Copenhagen; others, less fortunate, have succumbed to the progressive evolution of the infection, such as our brethren Moses, of Weimar, and Thomas Walley, of the Royal Veterinary College of Edinburgh.

Furthermore, there exist numerous authentic instances of infection by the use of milk coming from cows with tuberculous mammitis. The best known and most authoritative concerns one of the daughters of Professor Gosse, of Geneva. It has almost the value of an experiment.

Finally, the work of the great English hygienist, Thorne-Thorne, proves as well as evidence the reality and gravity of the danger. During fifty years the mortality from tuberculosis in England has diminished forty-five per cent; during this same time abdominal tuberculosis of infants has increased twenty-seven per cent. How can we explain these figures, so different? It is only for the last fifty years that you have done much in this country toward the cleansing of the house, the workshop, public places; lessening in this way the chances of infection by means of the respiratory tract, much the most common mode for adults; but you have done nothing against the dangers of infection by the digestive tract, which is the most frequent method for children artificially nourished.

Thorne-Thorne does not hesitate to attribute the increase of tuberculosis in young children to the absence of all regulations in regard to the dairy, and of all measures prohibiting the use of the milk coming from cows with tuberculosis of the udder. All those who study this question of milk agree with the opinion of Thorne-Thorne. It is for these reasons that I will continue to teach today as yesterday—" Mothers of families, do not give milk to your babies unless the milk has been boiled."

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN.
ASSISTANT PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

The Pathology of the Healed Fibrous Adhesions of the Pericardium.—Wells (*The American Journal of the Medical Sciences*, February, 1902). In a total of one thousand and forty-eight autopsies made at the Cook County Hospital inflammatory changes in the pericardium were found in one hundred and twenty-eight. Of the one hundred and twenty-eight cases seventy-one were acute and represented all the conditions usually seen in acute pericarditis, fifty-seven were chronic, the lesion consisting of fibrous tissue uniting the parietal and visceral layers for a greater or less extent. In eight of the chronic cases the cause was attributed to rheumatism, in six to tuberculosis, while in the remaining forty-three cases the cause could not be determined from the clinical history or the autopsy findings. Of these twenty-four were cases of total synechia, in fourteen the adhesions covered but part of the heart, while in the remaining five the apex of the heart was adherent to the pericardium by a single firm fibrous band. The large proportion of such cases of fibrous adhsions of the pericardium apparently latent during life is analogous to the similar conditions so frequently found in the pleuræ. In ninety-three per cent of these cases of pericardial adhesions pleural adhesions were also present. From these observations it would appear that the cause of adhesive fibrous pericarditis is in many cases the same as that of adhesive fibrous pleuritis. In many cases it is probable that the pericardial changes are secondary to those of the pleuræ. In eighteen of the forty-three cases a healed tuberculosis existed elsewhere in the body; in thirteen of these Wells regards tuberculosis to be the most probable cause of the pericarditis. By a process of elimination he attempts to show that many cases of adherent pericardium are probably of tuberculous origin, although not showing any anatomical characteristics of tuberculosis. When the patient's history shows freedom from rheumatism, pneumonia, and other acute processes and there is found at autopsy chronic adhesive pericarditis accompanied by a similar condition in the pleuræ, with healed or active tuberculosis in the mediastinal glands or both, the assumption that tuberculosis has caused the pericardial adhesions would appear to be justified. In eighteen of his cases Wells could find no cause for the fibrous pericarditis present. The coexistence of pleuritis in all of these cases is significant, as is likewise the fact that nephritis was present in many of them. This might be regarded as pointing to the existence of a nephritic pericarditis from which recovery may take place.

Wells further compares rheumatic and tuberculous pericarditis as follows: In the rheumatic there is a total absence of tuberculous lesions in the mediastinal glands and lungs; the pleuritis existing is usually localized at the pleuropericardial surfaces, seeming to be secondary to the pericarditis; endocardial changes are usually present, in all but one of those recorded; death is usually due to cardiac failure in the rheumatic, while this is the exception in the healed tuberculous pericarditis; the age of the subject is, on the whole, younger in the rheumatic. The fibroplastic changes in the pericardium do not differ from those in healed tuberculosis. Calcification of the pericardial exudate was present in four of Wells' cases; though in 1899 Diemer was able to collect from the literature but ten cases of this condition. In each one of these four cases a marked cirrhosis of the liver was present. The same condition was observed in nine of Diemer's cases. This striking coincidence cannot at present be explained. In fibrous pericarditis without calcification the condition known as pericarditic pseudocirrhosis is not infrequently seen.

The article is concluded by a summary of the terminations of adhesive pericarditis. Of importance is the suggestion that fibrous adhesions may act as a "locus minores resistientiæ." In support of this view is the fact that an acute pericardial inflammation is not infrequently found engrafted upon an older adhesive process.

Tumor of the Hypophysis Without Acromegaly.—Fröhlich (*Wiener Klinische Rundschau*, December, 1901) reports the case of a boy of fourteen years with symptoms of a tumor at the base of the skull, severe headache, vomiting, gradually developing optic atrophy, loss of pupil reflex, et cetera, of such a nature as to suggest the hypophysis or the hypophysis region as the site of the growth. No symptoms of acromegaly were present, but the patient showed a condition of general lipomatosis as well as trophic changes in the hair and skin, the latter suggesting myxedema.

Reviewing the cases reported of hypophysis tumor without symptoms of acromegaly, Fröhlich finds that they present a definite symptom-complex. In all cases where there are symptoms of tumor at the base of the brain the presence of rapidly developing lipomatosis or of trophic changes in the skin resembling myxedema are in themselves sufficient to indicate the hypophysis as the seat of the growth, in the absence of the changes in the skeleton characteristic of acromegaly. The absence of lipomatosis and of other trophic changes is, however, not to be taken as evidence of the absence of a tumor located in the hypophysis; inasmuch as several cases have been reported of tumor of the hypophysis showing neither these symptoms nor those of acromegaly. We are as yet wholly in the dark as to the true nature of the relation existing between these conditions and the hypophysis. None of the various theories offered in explanation of acromegaly is sufficiently satisfactory. That the hypophysis plays the chief roll in this affection can hardly be doubted. Fröhlich regards the presence of lipomatosis and myxedema in cases of hypophysis tumor without acromegaly as a strong support for the hypophysis theory of acromegaly.

EDITORIAL COMMENT.

THE INFLUENCE OF POVERTY ON THE DEATH RATE.

It would not be difficult to convince even the most skeptical person that the municipal application of the art of sanitation has markedly lowered the death rate in the great cities of the world. Complaints are not few that too little money is still expended on the drainage and scientific purification of our municipalities in comparison with other expenditures, but the great point has been gained that money so expended is not only not wasted but is economically spent. Public sentiment has been won over in this regard, and we are now reaping a bountiful harvest.

Granted that public hygiene is an important factor in diminishing the mortality, the study of the subject more closely reveals the fact that, personal as well as public hygiene is of signal importance in the final result. In order to arrive at the facts on a large scale the death rates of the rich and poor have been studied by comparison. In the *Medical Fortnightly*, **Wormley** quotes from various writers to show that the death rate among the poorer classes has been observed to be several times greater than among the richer classes. Their observations bear strongly upon the assumption of **Drysdale**, of London, that the reason why the mortality has not materially changed in the last four decades in that city is because of the poverty and consequent ignorance of the working classes which constitute so large a part of the entire population. **Thouvenin** is also quoted as believing that with the exception of cotton-beating, dividing and carding of silk cocoons, or white lead-grinding, and one or two other such trades, industrial pursuits do not exercise any especially injurious effects on the workingman's health. He finds the deterioration of the health of the wage classes in towns, and their greater death rate to be due to defects in their dwellings, to hereditary and skin diseases, to venereal and tubercular diseases, to the excess of premature toil, and the scantiness and bad quality of their diet, the irregularity of their lives while still immature, and, lastly, to a certain extent to dissipation. Another writer is quoted as remarking that the so-called mortality of certain trades is "only another name for poverty."

If the import of these observations have any significance in this country it means that the financial condition of the wage earning classes will always have a pertinent relation to the mortality of its members. As it is now there is a manifest difference in the death rates of the rich and poor. Whatever change there shall be in the future will result in part at least from some modification in the distribution of the products of labor and capital.

ANNOTATIONS.

HOW INCREASED AMBULANCE SERVICE MAY BE HAD.

PROMPT ambulance service is not always obtainable even in cities having hospitals provided with ambulances. That it should be is not open to question, and how it may be is described by Donoghue in the *Boston Medical and Surgical Journal.* Having witnessed an accident to a man for whose relief forty minutes were required to secure an ambulance, he set about examining the police ambulances and patrol wagons in Boston, with a view to diminish the time that such cases could be left untreated. Following his report a patrol wagon was fitted up with a stretcher, folding seats and first aid packets, and during the first ten months it cared for two hundred and sixty accident cases. The plan proved so satisfactory that all the patrol wagons in Boston were changed, so that now but seven minutes is the extreme limit of time needed to secure transportation. The discipline of drivers and helpers mitigate the need for ambulance surgeons. This idea might well be embodied in concrete form in many towns having hospital facilities and be the source of much gratification to those needing its services.

ON THE DISCUSSIONS OF ALCOHOL AS A REMEDY.

READERS of medical literature cannot but have noticed the unusual interest manifest of late in the proper location of alcohol in our armamentarium. The contributions upon the subject have been numerous, comprehensive and even contradictory, so that the profession may be credited with at least trying to arrive at a conclusion. The concensus of opinion seems to be against the use of this drug for much for which it has been held to be indicated, but there is felt no fear that it will be read out of the materia medica. Anyone who has been cognizant of the multitude of new drugs and new combinations of drugs which enterprising manufacturers have tried to foist upon the profession during the past few years, and especially if they have seen these same so-called specific remedies fall one by one by the wayside, will be able to realize the position in which alcohol has been placed. As soon as any new article of use is presented it is immediately applied not simply to the use for which it is adapted, but unfortunately it is tried for everything and the result is widespread disappointment. Alcohol has caused much the same experience. It came into use early when better remedies were scarce and consequently gained prestige clinically which laboratory investigation has not since borne out. As better means of combatting disease became known alcohol was gradually discarded from the list. Its use at present is limited to the few conditions in which clinical experience has demonstrated its value. But simply because it may be and is used as a beverage and intoxicant the profession will not wholly discard it.

MEDICAL NEWS.

OBITUARY.

Doctor Christian Fenger, of Chicago, eminent pathologist and surgeon, died of pleuropneumonia in that city March 7, 1902. The doctor first saw light at Copenhagen, Denmark, November 3, 1840. After receiving a thorough academic training he graduated from the medical department of the University of Copenhagen in 1867. He served as assistant to Mayer for two years and subsequently filled the position of interne in the Royal Frederick Hospital for a like period. He rendered service throughout the Franco-Prussian war as surgeon in the Red Cross Ambulance Corps, and was prosector and privat-docent in the Copenhagen City Hospital for several years, after which he went to Egypt, where he officiated as member of the Sanitary Council and likewise acted as surgeon to the Caliph, District of Cairo. In 1877 he came to America and located in Chicago. From 1878 until his demise he was connected with the Cook County Hospital as attending and consulting surgeon. During his professional career in Chicago he also enjoyed a connection with the Passavant Memorial, Tabitha, German, German-American, and Presbyterian Hospitals. In 1880 he was appointed curator of the Rush Medical College museum; in 1884 he accepted the chair of clinical surgery in the College of Physicians and Surgeons; in 1893 he severed his connection with this school to accept the professorship of ciinical surgery in the Chicago Medical College; and in 1899 he acceded to the chair of clinical surgery in Rush Medical College, where the climax of his reputation as surgeon was reached. It is said that he performed more difficult operations than any other surgeon in this country, and there is no operation in surgery or gynecology that he did not perform. On the occasion of his sixtieth birthday in 1900, a banquet was tendered to him in the Auditorium, which was attended by four hundred eighty physicians, representing one hundred thirty-nine medical societies and the profession in every section of the United States and Canada. At the time of his death he was president of the Chicago Medical Society and the Chicago Surgical Society. He was a prolific writer, and contributed more than eighty articles to current medical literature. In recognition of his scientific and humanitarian work the King of Denmark recently conferred upon him the order of Ridder of Dannebrog. A widow, son and daughter survive him. His thesis for the degree of Doctor of Medicine was entitled "Carcinoma of the Stomach;" his last operation in the clinic was a complete laryngectomy for carcinoma.

MINOR INTELLIGENCE.

J. PIERPONT MORGAN recently donated $25,000 to the Renovation fund of Guy's Hospital, London.

PROFESSOR BRONARDEL, who for fifteen years has occupied the position of dean of the medical faculty of Paris, lately resigned. His friends have engaged Roty, the artist, to execute a medallion for him.

IT is rumored that on April 1, 1902, Professor von Krafft-Ebing intends to resign the professorship of psychiatry which he has held in the University of Vienna since 1889, and return to his former home, Graz.

A NEW JERSEY woman, sixty-five years of age, recently gave birth to a healthy girl. The happy husband is five years his wife's senior. Although married forty years this is the first child born to the aged pair.

ACCOCDING to the daily prints, Doctor Allen Fitch and Doctor Austin Flint, of New York, are confronted by a suit for damages. The proceedings have been instituted by a Mrs. Egan, who claims that through the connivance of these gentlemen her detention was prolonged in an asylum for the insane after she had regained her mental equilibrium. The plaintiffs answer the charges by introducing a rebuttal.

THE preliminary program for the annual meeting of the American Medico-Psychological Association announces that this guild will meet at the Windsor Hotel, in Montreal, June 17, 18, 19, and 20, 1902, under the presidency of Doctor Robert J. Preston, of Marion, Virginia. The subject of the annual address, which will be delivered by Doctor Wyatt Johnston, of McGill University, is "The Medico-Legal Appreciation of Trauma in Its Relation to Abnormal Mental Conditions." The secretary is Doctor C. B. Burr, Flint, Michigan.

THE Prussain Government recently appropriated eighty-three thousand marks for scientific purposes. Twenty thousand marks of this sum will be expended in studying typhoid fever along the lines of prevention and diagnosis; ten thousand marks will be disbursed to the committee for Cancer Research; and fifty-three thousand marks will be devoted to erecting and maintaining a cancer ward and laboratory in connection with the Berlin Charité Hospital.

FRANK KING, a blind man of Kansas City, has evolved a plan by which he believes he can place blind people on an equal footing with those who can see, so far as industrial qualifications are concerned. His plan is to establish a colony of blind people in Kansas, and make the members independent by raising broom corn and making it into brooms. Mr. King has in his blind condition worked in the broom fields and factories and knows every detail of the business.

A NEW YORK woman brought suit against the Presbyterian Hospital of that city for performing an autopsy on the remains of her husband without her individual consent, and the jury rendered a verdict for five hundred dollars. The hospital authorities based their defense on the ground that the woman's brother had granted permission, but the court declared their position untenable and charged that the wife was the only person legally invested with power to authorize the postmortem.

PRESCRIBING druggists in Paris are being punished for violation of law. A member of the pharmaceutic guild recently analyzed the urine of a customer and prescribed treatment for kidney disease. The Physicians' Protective Association, which was organized for the express purpose of prosecuting chaps of the counter-doctor ilk, made a test case of this offense, and, notwithstanding the diagnosis and treatment happened to be correct, the transgressor was fined fifty francs and costs.

DOCTOR VON BERGMANN, ordinary professor of surgery and director of the surgical clinic in Berlin University, lately became the recipient of great honor, the rank of Wirklicher Geheimer Rath (Real Privy Councillor) having been conferred upon him by the German Emperor. The titular distinction also embraces a harbinger of the "Excellency" brand, which is designed for display on state occasions. This compound decoration is somewhat rare in Germany, few doctors, especially, bearing the dignity.

A PHILADELPHIA spiritualist made a will which bequeathed the residue of an estate valued at thirty thousand dollars to a spiritualistic association. The daughter of this benefactor instituted proceedings to annul the will, claiming that decedent was *non compos mentis*, his mind having been weakened by undue influence of mediums. The plaintiff advanced the contention that decedent was not mentally incompetent, and that his peculiar religious belief was as rational as that entertained by adherents to the manifold spiritual and social tenets of the day. The jury settled the matter by invalidating the will.

PROFESSOR HAAB, of Zurich, who will visit America this summer, will doubtless read a paper before the ophthalmological section of the American Medical Association.

DOCTOR SAMUEL LANDSMAN, of New York Clty, was the victim of attempted assassination a few days ago, Alois Spinnner being the perpetrator of the murderous assault. The physician had attended Spinner's son, and while pursuing the course of treatment the child was slightly burned in a hot-water bath and eventually died. The father became imbued with the idea that the burn was the cause of death, and, notwithstanding the fact that coroner and court exonerated the doctor, continual brooding over the loss of a son made the man frantic, and he sought revenge by shooting. Landsman's life was saved by lodgment of the bullet in his clothing.

THE prattling mechanism of a Massachusetts girl recently sustained an encounter with a safety pin which she swallowed while eating. The foreign body assumed a position just beneath the child's vocal cords, and although definitely located by the *x*-rays, the surgeons in charge were unable to extricate it. In a strenuous attempt to seize the pin it became dislodged and fell into a branch of one of the bronchial tubes, where it remained in safety for three weeks. The *x*-ray apparatus was again brought into requisition and the pin was located in the tube at the lower end of the third rib. Through an incision in the windpipe the pin was finally seized and removed.

MR. CRITCHETT, who has recently been appointed Surgeon-Oculist to His Majesty, King Edward VII, has a keen sense of humor as illustrated by the following story published in *American Medicine:* A man having been admitted to the hospital with paralysis of one of the ocular muscles, Mr. Critchett prescribed potassium iodid. The house surgeon wished to try galvanism. After a few weeks the paralysis was cured, and the diplopia disappeared. On being asked which treatment he thought cured the diplopia, Mr. Critchett replied: "I think we might try 'honors easy,' for I took him by assault and you by battery." Mr. Critchett is best known in this country for his operation for cataract without the use of a speculum.

THE subjoined quotation from an English paper may not have been intended as a jest, but its nature is nevertheless somewhat Jesty: "The late Mr. C. Jesty, Magistrate of Antwerp, Weymouth, England, brother of Mr. A. Jesty, sends the following extracts, held documents relating to B. Jesty's discovery of vaccination. These words are copied from a graveyard in Worth Maltravers churchyard: 'Sacred to the memory of Benjamin Jesty of Downsbay, who departed this life April 16, 1816, aged 70 years. He was born at Tetminster, in this county, and was an upright, honest man, particularly noted for having been the first person (known) that introduced the cowpox by inoculation, and who, from his great strength of mind, made the experiment from the cow on his wife and two sons in the year 1774.'"

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ORIGINAL ARTICLES.

ADDRESSES.

A MEDICAL CAREER EXTENDING OVER FIFTY YEARS.*

BY PHILIP A. KNIGHT, M. D., UTICA, MICHIGAN.

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THIS is one of the moments of peculiar interest in my life, and I am unable to give tone and expression to my feelings as I should like. In many ways this meeting is to me one of personal interest. There is not a member of the Northeastern District Medical Association that I could not have seen admitted into membership, had I been present—which has nearly always been the case. I wish to announce the fact that I am the only one living of that band of coworkers who organized this association fifty years ago. It reminds me forcibly that I am old, and I should like to express to this association my thanks for the honors conferred upon me, the humblest of the members of this association, in electing me to its presidency on this fiftieth anniversary. I esteem it a matter of pride; I esteem it an honor. Disrupted in my family relations, the troubles and afflictions that have come to me in the past five years leave me in such a situation that this society seems the only element of a family I have left. When I am gone, and you see my name upon the records of this association, think of me as an old man, modest in his assumption of ability, simple in his tastes, limited in his acquirements; but, above all, remember me as a man who was honest and loved his profession.

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* President's address before the NORTHEASTERN DISTRICT MEDICAL SOCIETY OF MICHIGAN, on the occasion of its Fiftieth Anniversary.

I had thought of addressing you upon some medical topic, but finally decided to be confined to no subject—except fifty years.

To make a concise note of the changes in politics, literature and science during the past half century would absorb the time of the historian for months and even years, but as the life of this society embraces that period of time a single glance at some few of the important events along these lines, and their results, may not be out of place at our fiftieth anniversary which we celebrate today. When VICTOR HUGO died in 1885, it seemed as if he had carried the poetry of the world with him. He being gone, those who came after could strike no new cord and could only repeat themselves. Still poetry did not die with him. There were living those who praised and those who cursed the days of scientific investigation, and claimed that poetry and literature could not live in such an age. Also in religious progress the disciples of religious faiths have stood appalled at the extinction of the life of some great evangelist, still religion has lived. The political wheels of Europe seemed to stop and Germany and England stood aghast when BISMARCK and GLADSTONE stepped from the public platform of statesmanship, nevertheless Germany and England still live. We, as Americans, wept tears of real sorrow when JEFFERSON and ADAMS, on the same day, closed their eyes and relaxed their hands from the helm of the great Ship of State. Other Americans have come and gone and we have been humiliated and shocked at the assassination of three Executives, still America lives. Thus it has been with science, literature, and art during the whole of the world's history, and thus it will be until investigation and development cease, and history is complete.

Along the pathway of medicine the beacon lights have been few in number and so far apart that much of the way the plodders had neither light nor landmark to guide them, and it was only by correcting the line backward that they were enabled to mark a comparative course for advancement. In the last fifty years hundreds of zealous students have, in Germany, France, and America, devoted their life-work to scientific investigation along the lines of pathology, physiology, chemistry and bacteriology. While at first they could see as but through a glass darkly, they eventually compelled the microscope and the laboratory to yield to their requirements, and the results have been startling—some convincing and some even conclusive. What may we not expect in the future? What will this continued investigation not produce for the life and benefit of the science of medicine in the fifty years to come? Very many diseases that *fifty* years ago were considered accidental and the causes guessed at, are today traceable to germicidal poisons and antidotes are being sought with great prospects of success,

Fifty years ago the word scrofula and malaria covered a vast amount of ignorance and consequently a multitude of sins. Inherited scrofula and malarial poison, neither of which could we see, taste, smell, feel, weigh or measure, we were taught to believe the cause of every pathologic condition that we could not classify by its symptomatology in the list of distinct diseases. Fifty years ago typhoid fever met with a complete revolution in its histology and treatment and the medical faculty was shaken from center to circumference by the proposition to feed, to support, to stimulate, and cleanse the system externally and internally from the infection present with this disease, and also by the abandonment of bleeding, calomel, opium, ipecac and antimony. At that time drinks and food were largely denied, and bathing little thought of. Two weeks of muttering delirium, high fever, tympanites, dry skin, brown tongue, and sordes upon the gums, were considered and looked upon as the necessary diagnostic symptoms of typhoid fever. Then the toxic effect of bacilli was not discussed, but nevertheless a great step was taken in the right direction in the recognition of a systemic poison with peculiar features, duration and results. The close and thorough investigation as to causes and conditions of this disease have unearthed the cause and supplied the rationale of treatment to such a degree that the mortality is reduced from forty-four to two and one-half per cent—a wonderful change indeed; and who can say that death from typhoid fever in fifty years from today will not be but a small fraction of one per cent?

In the treatment of diphtheria, that terrible death-dealing disease which but a few years ago the doctor approached with dread and quaking fear, such progress has been made that today, as the results of close and scientific investigation, we are enabled to cheer the friends with a hopeful prognosis and to expect a favorable termination. In this disease also the mortality is reduced from seventy-five to six and one-half per cent—wonderful result due to careful investigation and the scientific use of the pathologic laboratory and its equipments.

Tuberculosis, pneumonia, albuminuria, the various forms of malignant disease, rheumatism, with many other pathologic conditions, are today being placed in the sweat box for careful examination and investigation.

During the past fifty years in particular, various influences have stimulated many young scientists to pursue different lines.

of investigation, hoping to discover new facts and desiring to tear down old theories. Some of these were actuated more by the love of combat than by the more noble thought of development. Each has done his work and each has received his reward. The succeeding generation of students and teachers of medicine, saw the demand for something more rational, something that should be stamped with the facts of scientific proof applied to theory; hence, this tearing down of old tenements from the ruins of which before the new and solid could be made into a harmonious whole there sprang up, by mingling the mysterious with the reveries of the dreamer, hypnotism, spiritualism, occultism, mysticism, and all other isms; but today we turn to the ideal reality of internal life and investigate that along the lines of physiology and sociology. Nature and all life are incentives to the scientist to show to the student their peculiar and almost invisible modifications. This thought gives birth to intense and inspiring perceptions. The life of the body and the life of the soul melt into each other. There are insensible passages from the object to the subject, from the mortal to the spiritual, from the conscious to the unconscious. This is a wonderful study, a great text for scientists during the next fifty years. The least derangement of this delicate organism, or disturbance of a function, we know as disease, to combat and restore which is the work of the physician. Hence, how wonderfully great must be his scientific attainment; how careful his discrimination; how delicate his touch; how keen his sight; how comprehensive his comparisons in estimating the vital forces that he is to aid with his skill in overcoming the unnatural conditions or obstructions which occur in this intricate and delicately-constructed body—animated by the great mystery called life, and terminating in the greater mystery called death.

MEMOIRS.

WOUNDS AND THEIR TREATMENT IN THE SOUTH AFRICAN CAMPAIGN.

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RECENT operative experience in cases of gunshot wounds with the modern rifle has led me to take a most hopeful attitude in considering the treatment from a surgical standpoint; and it is from this point of view that I express my opinions in this paper.

The modern rifle bullet is soft lead covered entirely by nickel or cupronickel. When in full flight it will pass through any part of the body without deviation. The Mauser bullet, which was generally the cause of injuries here alluded to, weighs two hundred and fifteen grains. If the soft core is exposed by filing down the nose it is known as an "expansive" bullet, because the lead mushrooms on striking the human body and the bullet flattens and breaks into fragments. These injuries are severe and the soldiers often erroneously speak of it as an "explosive" bullet. Our knowledge of the effects of the Mauser rifles from their use by both sides was limited to the war with Spain, and as in this little quarrel no great masses of troops were engaged, the casualties were comparatively few. Thus we entered upon the South African war without any idea of what the surgical results would be in conflict between two nations each using the small bore rifle.

The limited amount of local damage produced in most instances by the very swift Lee-Metford or Mauser bullet has impressed all observers. The normal external wound is circular and quite small, like the end of an ordinary pencil, and it soon becomes sealed with a black scab of dried blood. The exit wound is often quite similar, or like a small slit, and closes in the same way. The soft parts and bone are damaged as a rule to a limited degree, and recovery generally takes place rapidly and without complication. The bullet itself seems to be aseptic. Clothing is very rarely carried with it. The bullet track behaves more like an incised wound than a contused one, and the rapid manner in which the small external wounds seal up reduces the injury to the subcutaneous form, and the frequency of recovery is proportionately great.

The manner in which the bullet may traverse the abdomen, thorax, cranium, great joint, and the important viscera, not only without entailing a fatal result, but often producing only a minimum of constitutional disturbance, must be witnessed to be realized. I was much impressed by the large number of traumatic aneurysms. The large vessels, even including the innominate artery, may be wounded by a bullet without causing fatal bleeding, and often with a surprisingly small amount of hemorrhage either external or internal—a totally new experience. Wounds of the blood-vessels are generally followed by aneurysmal swellings, sometimes arterial, more frequently arteriovenous. The treatment of these cases is difficult, and many I am convinced should if possible be left alone. Unless immediate interference is indicated by some urgency such as fresh hemorrhage, pressure symptoms, or impending gangrene, the longer the interval permitted before operation the better the prospect of ultimate success; besides, sometimes wounds heal spontaneously. In cases operated upon, ligation of vessels at the seat of injury remains for most instances the classic and safest treatment, but it is often attended by difficulties and frequently followed by gangrene.

The treatment of the larger portion of Mauser wounds is generally of the expectant kind, and of none may this be more correctly stated than of wounds involving the abdominal cavity. If there is one fact more than any other that the campaign has taught, it is that in the vast majority of abdominal wounds due to Mauser bullets, operative interference is not only inadvisable but inadmissible. The liver, kidneys, and spleen may be perforated and yet recovery ensue. The large intestine, and, I believe, the small intestine also, must have been perforated frequently without fatal consequences. The small perforation caused by the Mauser bullet and the usually empty condition of the bowel while the soldier is at the front are the principal factors to account for a nonfatal issue. In every region of the body the percentage of cases terminating fatally is diminished. Formerly a gunshot wound of the femur formed a serious menace to life, and determined not infrequently an immediate amputation. It will be accepted as proven that a Mauser or Metford bullet may traverse the knee and other articulations, fracture the bones, and enter into the joint without causing any risk to life or limb, or even any permanent disablement. Modern troops in the field are now supplied with a packet of antiseptic material called "first field dressing." It is hermetically sealed and carried in a special pocket in each soldier's jacket. If a surgeon be near, he applies the gauze, contained in the packet, to the wound and secures it with the bandage supplied; or the wounded man himself does it, or his comrade for him, as every man is taught its use and application. It certainly helps somewhat and comforts the wounded; but I myself do not much believe in its antiseptic adequacy, because it often slips out of place, and "ignorance handles it."

The treatment of these cases in the first stage has led to some difference of views among surgeons; but I am satisfied that reason and experience point in one direction. It has been recommended that fragments of bones which have been detached from the shaft should be removed and the limb then secured in splints. I entertain the opinion that local examination ought not to be carried out unless the surgeon should be driven to it by developments. The fact that bone is broken can be elicited quite easily by the methods which we employ in a simple fracture.

It is surprising how few complications many fragments apparently separated from sources of vitality may cause. If they do necrose later they can be dealt with under safe conditions. But I am quite sure that, with rare exceptions, the wrong thing to do in a recent wound by a bullet involving fracture of a bone is to explore it with probes, or to enlarge it for the passage of a finger and the removal of fragments.

In considering the results of treatment adopted we must divide the treatment into two stages, namely, that which takes place in the field and that which is carried out at the base hospitals, and my statement only applies to the management of the patients after they arrive at the base hospitals. When the cases reach the base hospitals the value of the recent advances in surgery at once comes into play and the results from that time onward are better than they would have been before these developments had taken place. I believe that modern surgery and asepsis have very little to do with the results in the field, and in my opinion these results are mainly attributable to the character of modern bullet wounds, and to the climate in which these wounds are inflicted. It must not, however, be supposed that bullet wounds escape sepsis. On the contrary, a considerable number of cases even of the small wounds inflicted by a rapid travelling bullet have suppuration along the track. In cases wherein soft parts only are injured this does not matter much; but when bones are broken, necrosis and other complications are apt to ensue.

I need not recall that a certain amount of moisture is necessary for the growth of bacteria, and that the concentration of organic fluids is one way of preserving them. Nor need I point out that healing by scabbing, which is an old and long recognized method, acts on this principle, the blood drying and becoming concentrated before the bacteria have had time to grow in it. This principle has been known for years, and various methods have been attempted to promote the rapid scabbing of wounds by powdering them, by blowing hot air on them, et cetera. Modern surgery is of value because it has taught the meaning and value of healing under a scab and has shown us that unless the wound can be made thoroughly aseptic the less such a scab is disturbed the better. We do not worship asepsis like they do at the Roosevelt or Presbyterian Hospitals in New York, or even at Saint Mary's Hospital in Detroit, and we are far from reaching finality in the treatment of wounds in war, but the ultimate object for which we strive is the diminution of suffering and the saving of life in war.

PUERPERAL SEPTICEMIA.*

BY C. L. BARBER, M. D., LANSING, MICHIGAN.

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NO question in medicine is of such vital importance to the busy general practician as that of puerperal septicemia. There is no subject in obstetrics upon which so much has been written, by equally eminent men, with as varied discussions and conflicting opinions. Thus, one states that puerperal fever is only a local inflammation, such for instance, as peritonitis; others declare it to be phlebitis, metritis, metroperitonitis, and essentially a zymotic disease, by which only lying-in women are affected. The student ceases investigating the subject in hopeless confusion and must use his own experience to ascertain the conditions existing in each case.

Modern or recent investigators are becoming more prone to believe that obstetricians have been in error concerning the idea that it is a disease peculiar to the puerperal state, instead of recognizing it as a septic disease similar to that which all surgeons know as pyemia or septicemia, nearly always produced by pathogenic infection of lesions of continuity in the parturient canal through lacerations of the cervix, vagina, or perineum. I am thoroughly convinced that the term puerperal fever, considered as a fever in the sense of typhus or typhoid, is erroneous, and that the conditions should be considered from the surgical standpoint of septic fever.

Since the days of Hippocrates the disease has been known as one of frightful mortality, particularly in lying-in hospitals, where many such cases are brought together; and it is only by the modern antiseptic or aseptic treatment that the mortality has been reduced. Theories regarding its nature are so varied and withal so unsound that not one of them will explain all the clinical features. I am obliged to admit that we are only on the threshold of inquiry. Many have taught that the disease is purely of local origin, producing constitutional effects. Phlebitis, peritonitis, and inflammation of the lymphatics, have each been assigned as a cause, but not one of these has constant conditions in all cases and in some of the most serious definite signs of local inflammation are entirely absent; nor will this theory explain the source of contagion or the peculiar severity of the constitutional symptoms.

The zymotic theory, or theory that the disease is produced by a specific germ and that the germ seeks parturient women, and that

* Read before the CENTRAL MICHIGAN (Lansing) MEDICAL SOCIETY.

the local manifestations bear the same relation to the disease that pustules do to smallpox or the ulceration of Peyer's patches do to typhoid fever, and that it spreads by infection or contagion, I do not consider tenable. Typhoid fever and other diseases of that class have some definite course and have well-marked secondary phenomena, but in no case of puerperal fever can the most experienced obstetrician foretell what the course, duration, or local manifestations will be.

The modern theory that puerperal fever is identical with surgical septicemia is not without objection, and much clinical investigation would be necessary to explain certain peculiarities which this disease presents. To me, however, it is the most plausible theory presented and in all respects the most consonant with facts. According to this theory the so-called puerperal fever is produced by the absorption of septic material into the system through the abrasions or solutions of continuity of the parturient canal that invariably exists after labor.

BURDEN SANDERSON says—"In every pyemic process you may trace a focus, a center of origin, lines of diffusion or distribution, and secondary results from the distribution." * * * In every case, an initial process, "from which the infection commences, from which the infection spreads, and secondary processes which come out of the primary one."

The interior of the uterus, and the ruptured cervix and perineum are the most frequent foci for the absorption of septic matter. Still, I am convinced that septic material may enter the system through the unabraided mucous membrane of the vagina, as in syphilis or gonorrhea, and the poison begun even before labor. It is reasonable to suppose, however, that absorption takes place soon after the lesions are made for it is known that the power of absorption is arrested after they commence to heal. This fact may explain why sloughing of the vagina and perineum or an intensely fetid discharge may take place a few days after labor without the absorption of septic matter.

The popular divisions of the source of infection are, autogenetic, or cases in which the infection originates in the patient; and heterogenetic, or those in which the infection comes from outside the body. Retained coagula, parts of the membranes or placenta may decompose and set up infection. A weakened condition of the patient with a corresponding weakened tissue would favor absorption. The source of infection from without is often very difficult to trace. Decomposing organic matter seems to be the most virulent of infections. Poisons may be conveyed from autopsies, erysipelas, scarlet fever and diphtheria. Sewer gas and defective sanitary arrangement are very frequent sources of infection. Contagion may be transmitted from one patient to another by the hands or instruments of the attending physician or nurse or by the patient.

Many eminent physicians acknowledge that they have carried the disease from one patient to another. This unhappy property of conveying contagion seems to cling to some individuals in a most mysterious manner and would lead one to suppose their whole system was saturated with the poison. The late DOCTOR RUTTER, of Philadelphia, had forty-five cases in one year, while none of his neighboring colleagues were confronted with the disease during that time. He left the city for ten days; then before attending the next parturient case he shaved off his hair, took a hot bath, put on a wig, changed all his clothes, taking nothing with him that he had ever used before, but notwithstanding his patient had an easy labor, she was seized the second day with childbed fever and died the eleventh day after parturition. Two years later DOCTOR RUTTER again tried self-purification but his first parturient patient died of this disease. It was afterward found that DOCTOR RUTTER was subject to a form of ozena and in all probability his hands could not be made aseptic.

A decayed tooth, an alveolar abscess, and catarrh are said to have been the source of infection. The careless nurse or patient is as liable to carry contagion as the physician, by the use of soiled linen or sponge in bathing the genitals. Septic matter in the atmosphere may be a source of infection in hospitals and private houses with escaping sewer gas. The nature of the poison is yet a moot question and too little is known of it to make a positive statement justifiable.

The researches of HEIBERG and others, have proven that in puerperal septicemia, as in surgical fever, erysipelas, and other infectious diseases, micrococci, in large numbers, may be traced passing between the muscular and connective tissue fibers to the lymphatics and into the general circulation, and that they may be found in various organs and pathologic products.

FRANKEL found in a number of cases a chain-forming micrococcus, which he regarded as specific and named streptococcus puerperalis. Later he found the same in pus.

WINCKEL also cultivated a streptococcus from a case of puerperal peritonitis. It produced an erysipelatous rash in the ear of a rabbit, and was similar in character, both morphologically and in artificial cultivations, to the streptococcus in erysipelas.

CUSHING and others found that the streptococcus from pus, from erysipelas, and from diphtheria all had the power of setting up puerperal septicemia.

DOLÁRIS never failed to find streptococci in the blood in puerperal fever and after death they are found in great numbers. They do not multiply in the blood during life but cause changes in both the red and white corpuscles, which stick together and form minute capillary infarctions in which they rapidly increase and then invade the surrounding structures producing various pathologic changes.

These observations confirm the relation that exists between these diseases. It is certain that streptococci bear an important relation to this disease, but whether they form the poison, carry it, or are produced by it, cannot be decided with our present knowledge.

In discussing the channels of diffusion we need to consider both the local and general effect. Local changes consequent upon absorption of septic matter are generally quite constant, and similar in character to those in infected dissection wounds. In a great majority of cases the site of absorption shows signs of the disease; they are described by pathologists as identical with the inflammatory edema which occurs in phlegmonous erysipelas.

Lacerations of the cervix or vagina produce unhealthy action, their edges swell, the surface becomes covered with a yellowish coat similar to diphtheritic membrane in appearance. The mucous membrane of the uterus is generally affected, varying with the intensity of the septic process, evidences severe endometritis, is softened, necrosed, degenerated and covered with diphtheritic membrane. In the severer cases the muscular structure of the uterus also may become necrosed and appear like hospital gangrene. The connective tissue of the whole generative tract becomes swollen and edematous and may extend to the peritoneum, although peritonitis is as apt to be a secondary phenomenon through poisoned blood as by direct continuity of tissue. Distinct traces of local action are not always present for often the septic absorption is so great and the depression of the system so profound that death occurs before local changes manifest themselves.

The fact that puerperal fever may prove fatal without any appreciable postmortem signs has been noted in epidemics in lying-in hospitals.

The absorption of poison is undoubtedly through the lymphatic glands and veins. Septic matter enters the lymph spaces which so freely abound in connective tissue and is there carried along to the nearest glands through the lymph canals.

VIRCHOW has shown that the absorption of septic material may be delayed by local changes produced in the lymphatics and glands with which they communicate and progress may be stopped and only local inflammation result. Such cases HEIBERG denominates abortive pyemia.

The uterine veins are supposed by D'ESPINE to be channels of absorption in the intense form of the disease which proves fatal so shortly after delivery. The veins are not likely to act this way for under ordinary circumstances they are occluded by thrombi, or hemorrhage would occur.

Some writers lay stress on improper uterine contraction predisposing to septicemia.

Postmortem examinations reveal a very great change in the serous, as well as in the mucous membranes, and many local hemorrhages and embolic infarctions are found in nearly all the organs of the body.

The symptoms usually become manifest within two or three days, and the disease is generally though not always ushered in with some chilliness and rigor. It often comes on very insidiously, and the pulse acting from 100 to 140 per minute is the first symptom that excites our attention. The temperature rises to 102° or 104° and in severe cases to 106° Fahrenheit. In more intense cases the whole system is overwhelmed with the severity of the attack and the temperature remains high without marked remissions. The pulse is rapid, small, and weak. The countenance is sunken and sallow. The expression anxious. As a rule the mind is clear, but low muttering delirium may ensue. There may be no pain and but little tenderness over the uterus and bowels. As the disease progresses the intestines become greatly distended with gas and tympanitis is distressing. The breathing becomes shallow and rapid. Diarrhea and vomiting very often occur, the latter dark, grumous and coffee-ground in character. The diarrhea is often profuse and uncontrollable.

The duration in fatal cases is usually from one to two weeks. Local complications greatly modify the symptoms and duration; as peritonitis by pain, tenderness and bloating; pneumonia by dyspnea, cough and dullness; pleurisy by friction, sound and dullness on percussion; kidney disease by albuminuria and casts; liver disorders by jaundice, et cetera.

The pyemic form of puerperal fever is not so intense and rapid but is of a more chronic nature, lasts several weeks, and it is generally some days after confinement that indications of septic infection become manifest. Severe and recurrent rigors are features usually, and a peculiar yellowness of the skin frequently accompanied by well-developed jaundice occurs. Localized inflammations and suppurations often rapidly follow. The knees, shoulders, and hips may become inflamed. Large collections of pus in various muscles and connective tissue are not rare, as in the eye, in the pleura, pericardia, or lungs.

The treatment should depend on the physician's views of the cause, and he would naturally be biased by his theory of the nature of the disease. The indications to bear in mind are: First, to discern if possible the source of the poison and arrest further absorption. Second, to keep the patient alive until the poison is eliminated, or its effects wear off. Third, to treat any local complications that may arise.

I would first clear the uterus and vagina of any poison they might contain by antiseptic douches and dull curette if necessary, until sure no more septic matter would be absorbed. Carbolic acid one to fifty; biclorid of mercury one to two thousand; iodin dropped in water until a cherry red color is obtained; or boric acid solution may be used. Any of these should be followed by irrigation with normal saline solution. A careful inspection of the vagina and the vulva for necrosed tissue should be made. These irrigations should be performed by the physician himself and not trusted to the nurse unless she is an expert. Food and stimulants, and more particularly the stimulants, are a source of strength. Milk, beef tea, and eggnog are some articles of food usually well borne. Whiskey is the best stimulant, four, eight or twelve drams in twenty-four hours are required and well borne in some cases. As medical treatment I give tincture of veratrum viride in doses of five drops every hour until temperature falls below 100°, then three drops every two or three hours, or tincture of aconite, one drop every half hour or hour, until the pulse begins to fall, are recommended by high authority. Quinin in ten to thirty grain doses has been used for the same purpose, to reduce temperature, by the Germans. Antipyrin combined with some stimulant in twenty grain doses is also recommended. Salicylic acid or salicylate of soda in ten grain doses will reduce the temperature but it weakens the heart. Warburg's tincture is probably the most popular remedy, especially if malaria to any appreciable degree exists. Cold applied to the head by means of ice caps or to the body or spine has its advocates. The tympanitic distention of the bowel is relieved by turpentine in doses of fifteen to twenty minims. Purgatives, diaphoretics, and even emetics are often given as eliminants, particularly in Germany and England.

Internal antiseptic remedies are useful, iron for the blood, and morphia to produce rest, we are told are the best remedies.

The above is about all that we find in medical literature on the subject, but to me it is rather unsatisfactory, and therefore I beg your indulgence for a few minutes while I give you what experience, observation, and careful thought on the subject have convinced me to be the most rational view of the condition, together with procedure that has never yet failed to bring me happy results.

(1) I regard every case of confinement a surgical case which should be treated as such.

(2) The attending physician should be engaged ahead and should prepare his patient by knowing that the bowels, kidneys, skin and nervous system are performing their various functions properly, or as nearly so as is possible and especially the kidneys and bowels.

(3) The confinement room should be cleaned and disinfected the same as for any other surgical operation.

(4) The patient should have a general tub bath and the vagina, vulva, abdomen and thighs should be scrubbed and disinfected. The sheets, pillow cases, cloths, pads, water, all instruments used should be thoroughly sterilized and the bed protected by the Kelly pad or an oilcloth.

(5) The attending physician should as thoroughly disinfect his hands and arms, as for a laparotomy or hysterectomy, wear a surgical apron, and avoid touching any contaminating article.

(6) The physician should never attend a case of confinement while he is attending a case of erysipelas, scarlet fever, diphtheria, smallpox, puerperal fever, or blood poisoning, unless he is so thoroughly disinfected himself together with his clothing that he is satisfied he will not infect his patient.

(7) He should require the same caution upon the part of the nurse and patient.

(8) If the physician should have case after case of puerperal fever after these precautions have been carried out he should refrain from attending cases of confinement for he is the victim of an idiosyncracy.

(9) I believe nine hundred ninety-nine cases out of each thousand are under the control of the physician and that no puerperal fever should occur.

(10) If perchance a case should occur, besides the treatment laid down in the books, I would lay stress on the intravenous injection of normal salt solution, both for the purpose of washing off the red and white corpuscles and as nature's disinfectant

to the blood tissues. I would employ hypodermic injections of atropia to control the chills and to equalize the circulation; the hydrobromate of hyoscyamin to promote rest and quiet delirium. Iron, quinin, and whiskey, pushed to full physiologic effect, are employed for constitutional treatment. Ergot, administered for twenty-four to thirty-six hours following parturition, in ten to fifteen drop doses every two or three hours, keeps the uterus well contracted and I think lessens the liability of absorption of poison.

As I said before, I believe that if the above directions are followed a physician will seldom have a case of puerperal fever to treat.

SCIATICA AND ITS TREATMENT.*

BY SETH C. FELT, M. D., NEW BOSTON, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THIS is, as a rule, a neuritis either of the sciatic nerve or of its cords of origin. It may be functional neurosis or neuralgia. It occurs most commonly in adult males, and is frequently caused by exposure to cold or by overwork. Some cases are traumatic. The nerve has often been seen, in the operation of stretching, swollen and reddened and in a condition of interstitial neuritis. The affection is most intense at the sciatic notch or in the nerve about the middle of the thigh.

Of the symptoms, pain is the most constant and troublesome, and always follows the nerve in its course. The onset may be severe with slight pyrexia, but as a rule it is gradual with a constant temperature of 99° to 99.5°. The duration and course are extremely invariable. As a rule it is an obstinate affection lasting for months and with slight remission continuing for many years, causing curvature of the spine, partial loss of the function of the limb with wasting of the muscles; but the reaction of the degeneration can seldom be obtained. In rare instances the neuritis ascends and involves the spinal cord, and all cases are accompanied by lumbago. In the severer forms the patient is bedridden and such cases are among the most distressing and trying which the physician is called upon to treat.

Diagnosis is of great importance, but easily determined. First, there is pain, generally extending the entire length of the nerve, sometimes extending over the foot and always increased pain on pressure at the sciatic notch. Extension of the leg, squatting, stooping to tie the shoe, and extending the toes upon the foot often produce pain equal to fire. All patients have a very characteristic limp with curvature of the spine. All avoid pressure on the sciatic nerve when sitting. The affection is rarely bilateral. It may be complicated by articular rheumatism but yields readily to treatment.

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*Read before the DETROIT MEDICAL SOCIETY.

TREATMENT.

Some authors advise rest in bed and fixation of the limb by means of a long splint. Only a small percentage of sciatic patients can remain in bed to exceed two or three hours at a time. Some authorities give a long list of drugs for sciatica, including the injection of chloroform into the nerve, the surgeon's knife, and stretching the nerve. The virtue of the thermocautery and the hot iron have also been thoroughly tested and today all are considered uncertain remedies. After a thorough application of all these remedies without relief, you will realize the rebellious and obstinate character of sciatica. Twenty-five years ago, when I began practice, I had a few cases of sciatica and in every case I was sorely disappointed with the result of my treatment, but the unpleasantness was somewhat modified when I learned that others met with a similar result by treating the same patients.

To be successful, preliminary preparations are often of vital importance; but not until I had endured sciatic pains, that cannot be described by any known words in the English vocabulary, was I aware that such a painful preparation is a very essential part in the successful treatment of sciatica. My unpleasant experience in being a sciatic patient and living in a sciatic atmosphere prepared me to sympathize with my patients and to treat them successfully.

When I became convinced of the fact that I had sciatica, terror was added to the gloomy aspect when I could not refer to one case that had been treated with any degree of success. Death would be preferable to hobbling about year after year as others were obliged to do. After trying the various remedies unsuccessfully, I was thoroughly convinced that only the most heroic treatment could be expected to afford relief. I then commenced with one-thirtieth grain of atropin administered hypodermically on the anterior aspect of the sciatic leg about four inches above the patella. The unpleasantness that followed during the next twelve hours can be imagined better than described. At the end of forty-eight hours I took another dose of one twenty-fifth grain. The disagreeable effects lasted twenty-four hours and I then imagined I had less pain. Perhaps the effects of the atropin had been so severe that I was not in a very good condition to decide. At the end of forty-eight hours I had entirely recovered from the atropin except impaired vision. I took the third dose of one twenty-fifth of a grain which was followed by all the unpleasantness that the mind could possibly conceive, and some time during the pandemonium, which lasted about twenty-four hours, the pain left me. Of this I was positive. I could move in any position without the slightest pain, but it seemed impossible for me to realize that I had consummated a successful treatment and a permanent cure in less than six days and with three doses of medicine. I watched the result with distrust and suspicion, expecting each day the pain would return, but I am pleased to say I have been happily disappointed. That is the only reason I have for being an enthusiast in treating sciatica.

As soon as I became convinced that I was well, I did not hesitate to call on those I had failed to relieve, and the effect was even more wonderful than my own experience. The result of my treatment was reported to a medical journal and returned, and perhaps it rightfully found a place in the waste paper basket. Afterward I realized that the article must have been considered a very dangerous one; but this did not occur to me until I had begun to feel that I was making myself a subject of ridicule by relating my incredible experience to my professional brethren. I could not expect a druggist to prepare a prescription containing such doses. I have yet to find a physician who has sufficient backbone to use it.

I was visiting relatives in Ohio in December, 1881, and by their request, I called upon one of their friends who had sciatica. He was fifty years old and had been confined to the house for three months. During the last six weeks he was obliged to keep his bed. He could neither sit nor stand and pain was constant. Sleep was obtained only by the aid of opiates. I did not hesitate to tell him he could be cured in a very short time, and if he would send for his family physician I would instruct him how to proceed. The patient was delighted with the prospect of being relieved. I went with his son to the village, one mile away, and there I secured one grain of atropin dissolved in one hundred drops of water. I then called upon the doctor and we met at the patient's bedside. I injected three drops, telling the doctor I would give another dose before I left town. I gave the second dose, which was five drops, and left for home, after I had explained definitely to the doctor and the patient the unpleasant condition that would be necessary to produce relief; but fortunately for the patient, I did not tell the doctor the amount of atropin that was given. Ten days afterward I was pleased to receive a letter from the patient stating that he was well and able to do the chores at the barn and could sleep well without morphin pills. I received a letter from the doctor also and he was well pleased with the result and expressed a desire to know the strength of the solution. I sent it to him but his reply was a disappointment to me. The nature of it was criticism and censure and he closed by saying he would never use it again.

Many years ago I described this treatment definitely to physicians in this city who made a note of it in their books. One of them has since been distressed for months by the pains of sciatica, but has not the courage to use atropin. During the past twenty years I have been surrounded by an atmosphere of opposition, but I have become reconciled to the situation, and consider it the result of timidity and lack of confidence.

For convenience and accuracy, I dissolve one grain of atropin in one hundred drops of distilled water, accurately measured by a dropper held in a perpendicular position. One hundred drops measured from a perpendicular dropper equals only about eighty from the same dropper when held at an angle. The hypodermic syringe must be in a perfect condition to empty it thoroughly. A little air can be behind the fluid or a few drops of water may be added to the dose, and then if half a drop should be left in the syringe, it would not materially interfere with the desired amount given.

I begin treatment by giving three drops, never less than this quantity, hypodermatically, about four inches above the patella in the sciatic limb. It is to be given at bedtime if possible. If the dose is sufficiently large, the pupils will begin to dilate and the pulse will reach to 100, with thirst, in about ten minutes. At the expiration of twenty minutes the pulse may reach 120, but rarely as high as 135. The pupils will be thoroughly dilated, the head dizzy, with intolerable thirst that can only be partially relieved. I have allowed the patients all the water they wished. To swallow solid food in most cases is an impossibility. The function of the kidneys is not impaired, but retention of urine always occurs, lasting from five to nine hours, with a frequent desire to urinate.

If the above symptoms all subside within twelve hours, the dose was not sufficient and it can be increased one drop each time until the dizziness lasts twenty-four hours. The dose must not be repeated oftener than once in forty-eight hours and not until the head symptoms have entirely disappeared. I have never treated a patient who could not have taken three drops without alarming symptoms. At the present time I usually begin with four drops and always give a number two capsule of quinine three times a day. That keeps the temperature normal, which is essential to obtain a speedy result from the atropin.

PRECAUTIONS.

Administer the atropin in the evening if possible. Never allow the patient to leave the house alone, and if he sleeps upstairs an early call to repair some broken bones may be expected. An overdose is recognized by talkative delirium and there will be no improvement from such doses. Do not forget to tell the patient about the unpleasant symptoms that must follow and the number of doses that may be required. I have never had any serious results from atropin and have never seen an eruption from its use. I have used the catheter for relief in only two cases.

PATIENTS CURED.

Case I.—A coal-burner, aged twenty-eight years, who had walked with a crutch and a cane for two years. He lived in an old shanty in the woods where he was engaged in burning charcoal, and by the assistance of his wife was able to watch the kilns. He was not able to ride in a wagon, neither could he walk more than a few rods without rest, and to sleep was almost impossible. It was in April, 1880, that I gave him the first dose of five drops. He became thirsty in less than two minutes and drank incessantly. This was really his worst symptom. After forty-eight hours I gave him the second dose of five drops with the same result. When I gave the third dose I was able to see some improvement. When I went to give the fourth dose, I was obliged to go by rail the roads being impassable. When I arrived at the station you can imagine my surprise at meeting the patient who had walked three and one-half miles through the mud on a road that was not passable for a horse and carriage. He has never had the slightest symptom of the disease since.

Case II.—Patient was a farmer's wife aged forty-eight years, She always enjoyed good health and assisted a great deal in doing the chores in the barn. She was attacked with sciatica of a mild but continuous form which, however, did not prevent her from working and she expected to recover without treatment. At last it became so annoying that I was called to treat her, and with three doses of three drops each she was permanently relieved and is now living in California.

Case III.—The father of an ex-judge of this city aged sixty years. He was in a feeble condition, having been ill for many years with bronchitis and emphysema. In 1881 I was called to treat him. His was a well-marked case of sciatica, not sufficient to confine him to the house, but interfering with all the comforts of life. The pain had been so constant for two years that he considered it incurable. Taking into consideration his feeble condition, I commenced with three drops which had not the least effect. With the sixth dose I had reached nine drops, and I continued with nine drops until I had given nine doses in all. There were no serious results and a permanent cure ensued.

Case IV.—A thriving farmer in the township of Taylor, aged fifty-five years, who always enjoyed the best of health. He had quite an extensive acquaintance here in the city where he sold his produce from house to house. He was attacked with sciatica which did not prevent him from riding, but interfered very much in walking or stooping. In that condition he continued to peddle his produce, but was unable to leave his wagon. In September, 1884, he called on me for treatment, remained ten days and then returned home perfectly well.

Cases V, VI, and VII.—Three patients at my office was the result of his first trip to Detroit with a load of produce. A lad of fifteen was the most interesting, the youngest patient I have seen with sciatica. He walked with two canes and was not able to rise from his chair without help. He had been in this condition more than a year. At the end of two weeks his daily amusement was running after the pigs in the orchard. The relief was permanent and was the result of three doses of three drops each.

The total number of cases treated was twenty-nine, of which twenty-two were permanently cured.

Two were cured with two doses of three drops each.

Two were cured with three doses of three drops each.

Six were cured with three doses of five drops each.

Five were cured with four doses. First dose four drops, next three doses five drops each.

Three were cured with six doses. First dose four drops, second dose five drops, next four, six drops each.

Two were cured with seven doses. First and second doses five drops each, next five, six drops each.

One was cured with nine doses, the last four of nine drops each. The first dose, three drops; second dose, five drops; third dose, six drops; fourth dose, seven drops; fifth dose, eight drops.

One was cured with thirteen doses of four drops each.

Total cases, twenty-two; total doses, one hundred and four; total drops, five hundred and sixteen.

Average number of doses, four and two-thirds.

Average number of drops, twenty-three, or one-fourth grain.

Average number of days under treatment, nine.

Total amount of atropin, five and one-sixth grains.

Cost of atropin, fifteen cents.

Number of cases suffering a relapse, only one. This occurred one year after the first treatment of three doses. He was cured the second time nine years ago with four doses of five drops each.

PATIENTS NOT CURED.

One patient became disgusted with the first dose and would not try again. He is now a permanent cripple.

Another fell down stairs after taking the second dose, and the only professional relations I had with him afterward was in the nature of general repairs.

One man was relieved immediately by a clairvoyant, sending him a lock of his hair, after I had given him three doses.

Twelve years ago, immediately after taking three doses, one of my patients left for California. I saw him last summer and he said he was well before he reached the coast.

A fifth would not take the fourth dose because he said he could not see to write the next day.

Another one was not benefited in the least after taking fifteen doses. The disease in this case was the result of a serious injury and the only traumatic case I have ever seen. The patient was immediately relieved by going to Louisiana.

One patient refused to take a full dose and was not benefited by seven doses of three drops each.

Total number of cases not cured, seven.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, FEBRUARY 26, 1902.

THE PRESIDENT, DELOS L. PARKER, M. D., IN THE CHAIR.
REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR SETH C. FELT, of New Boston, Michigan, read a paper entitled "Sciatica and Its Treatment." (See page 1.)

DOCTOR CHITTICK: I have treated two cases by the method which is advocated by **DOCTOR FELT** and met with satisfactory results in both.

Doctor Grover: My wife complained of severe pain along the sciatic nerve. She complained also of a good deal of pain shooting across the abdomen. On administering treatment along the lines indicated she slowly improved. I would like to ask Doctor Felt if he has treated any patients who have had manifested reflex phenomena.

Doctor Hitchcock: I should like to ask the doctor why he gave one-thirtieth of a grain, and if he has experimented with smaller doses and found that he can obtain good effects from them? (Answer: I have tried smaller doses but, as stated in the paper, I did not receive beneficial effects). When the doctor gives doses of nine drops each are we to infer that the solution is of the same strength, making a dose of one-tenth of a grain of atropin? (Answer: Yes, that is correct.)

Doctor Felt: In the case of the gentleman who was present here tonight, I increased his dose to seven drops, but when an overdose is taken the patient is not benefited by it. During the forty-eight hours after this man took the seven drops he was not benefited a particle. He improved faster on five-drop doses than he did on six.

Doctor Wright: Are constitutional symptons more exaggerated when these large doses are administered than when a smaller dose is given?

Doctor Felt: I have had only one patient who has been able to take nine drops, but I do not give the same size drops that I would when giving seven or nine. That quantity I consider an overdose, which is apt to cause talkative delirium, and the patient will not improve for the next forty-eight hours. That condition is the only symptom of an overdose.

Doctor Robbins: From what has been said during the evening we have been led to believe that all cases of sciatica are chronic, and I think that most of us have had sufficient experience with sciatica to know that there are many cases of true sciatica that recover under ordinary treatment after a reasonable length of time. I can remember a number of cases of sciatica which have been treated by methods not so distinctly effective as the one mentioned by Doctor Felt. In regard to giving small doses of atropin for other conditions, we find that some persons are so very sensitive to it that a two-hundredth of a grain will affect them whereas a twenty-fifth of a grain will not affect other persons. We should feel our way and not give a large dose, until we find that patients are not too susceptible. Having known Doctor Felt long and favorably, and relying implicitly upon his honor and truthfulness, we must regard his paper as a valuable contribution to the society.

Doctor McGraw: I can endorse what Doctor Robbins has said about our friend, Doctor Felt. I have known him a great many years. The only objection to the treatment is that it will decrease the practice of the surgeon in the line of nerve stretching, et cetera.

Doctor Grover: I wish to ask if Doctor Felt has had any experience with reflex cases of the nature to which I referred. (Answer: I do not remember having any cases of that nature.)

Doctor McGraw: It does not follow that the condition is reflex.

Doctor Felt: I have not yet found a case that has caused me any anxiety or alarm. The only unpleasant one is the talkative delirium and desire to urinate, but the latter is relieved by the catheter. The talkative delirium only occurs in a few cases and when it is present I reduce the dose. When the dizziness persists for twenty-four hours I continue the same dosage, but if the condition does not prevail for the specified time the full physiologic effect of the dose has not been obtained.

Doctor Bell: Do you remember the character of the pulse and the rate that followed the giving of nine drops?

Doctor Felt: Not exceeding 130, lasting three hours.

Doctor Wright: What opportunity have you had for observation of the pulse? How long does this rapid pulse continue? (Answer: About three hours). Have you had opportunity for accurate observation for hours subsequently to the administration of the dose? (Answer: Yes, sir; I have had two cases in my house. One of them was cured at the end of ten days, and the other one after taking three doses. It has no serious effects upon the respiration). Is there much tendency to scarlatinal-formed eruptions? (Answer: I have never seen one case, even, wherein there was long delayed doses.)

DETROIT OPHTHALMOLOGIC AND OTOLOGIC CLUB

STATED MEETING, APRIL 1, 1902.

The Chairman, EUGENE SMITH, M. D., Presiding.
Reported by WALTER R. PARKER, M. D., Secretary.

REPORTS OF CASES.

PRACTICE OF EUGENE SMITH, M. D., OF DETROIT.

TUBERCULOSIS OF THE CORNEA.

A married woman, aged forty-one, of large physique, weighing about one hundred and seventy pounds, the picture of health, gave the following history.

In March, 1901, a very small ulcer formed on the cornea which rapidly responded to treatment. Five months later the cornea in its entirety became hazy, with slight circumcorneal injection. She consulted an oculist who treated her for interstitial keratitis for several weeks. About December 1, the eye became painful and inflammation more intense. Three weeks later she consulted me, when the appearance of the eye was as follows: Cornea very opaque in its deeper layers. A rim of transparent cornea about two millimeters in width nearly encircled the cornea at the limbus. The anterior chamber and iris were apparently normal. With focal illumination a sharply rounded whitish tumor could be seen through the transparent rim of the cornea protruding into and filling about one-half of the anterior chamber. Tension + 2. The following day I enucleated the eye. After hardening it in formaline solution I incised the cornea around the limbus, leaving the opaque bit of the circumference as a hinge. Upon the inner surface of the cornea were three distinct nodules in the shape of a clover leaf—one large and two small. The surface was smooth. I did not disturb the eye further, but sent it intact to the Detroit Clinical Laboratory for examination. Following is DOCTOR GIBBES report:

"*Technique.*—The cornea was removed and divided into equal portions after hardening. One half was cut into vertical sections, the other into horizontal. Sections of each were stained with logwood to demonstrate the morbid histology and others were stained by different methods to show the presence of bacteria and more especially the tubercle bacillus. Sections were also made through the junction of the cornea and sclerotic choroid and ligamentum pectinatum iridis, round the whole circumference of the eye.

"*Morbid Changes.*—The most striking change was the abundance of blood-vessels running in every direction through the affected portion of the cornea. These vessels crossed one another and in many instances appeared to concentrate at one point. Careful observation showed that this spot was the site of a future tubercle. A further advancement is shown by the appearance of one or more multinucleated or giant cells. These vary very much in size and in the number of their nuclei. Surrounding the giant cells are a number of cells each with a large polymorphous nucleus. These cells take the stain faintly. Amongst these are numbers of leucocytes with nuclei of various shapes and some showing mitotic figures. A homogeneous ground substance fills in the space between all these cells, and shows a more or less definite line of demarcation, in this way marking off the tubercular areas. A further stage appears to be a degeneration of all these cells and their blending with the ground substance, which become more pronounced and granular. This is the furthest stage at which any of the tubercles in this case have arrived. In the center of the tubercular areas, are some spaces of very irregular shape. The edges of these spaces, as seen in section, seem to be formed by a homogeneous material, but this may be a fluid coagulated by the hardening process (formalin). Careful extended staining by different methods and by different individuals, failed to reveal any tubercle bacilli in any part of the growth. The tubercular change was confined to the posterior two-thirds of the cornea. Descemet's membrane was bulged but not perforated. There were no tubercles in the choroid or sclerotic and only one small mass at the root of the iris at one point in its circumference."

The extreme rarity of corneal neoplasms, notwithstanding the very active nutritive interchanges of the cornea, is a fact of much interest. The conjecture that parenchymatous keratitis may be caused by tuberculosis, seems somewhat borne out in this case, as it resembles it in appearance and was indeed treated for it, as already stated. I have failed to find anything like this case in the literature at my command, and this case cannot be classed with those cases of tuberculosis of the cornea wherein an abscess of the cornea has seemingly deliquesced and changed into a caseous mass.

Norris and Oliver—"System of Diseases of the Eye," page 255, Volume IV—devote a paragraph to "Corneal Leprosy" as follows:

"The cornea is sometimes invaded by leprosy in its general tuberculous form. The infection evidently takes place in all cases through the limbus, that is, toward the conjunctiva, for it is always on the periphery of the cornea (in its tissues proper) that the tubercles first make their appearance. The tubercle grows soft, *ulcerates* and exhibits a tendency to perforate the cornea, et cetera."

These conditions did not exist in the case I report. The neoplasm in the case here reported, showed no tendency to perforate the membrane of Descemet, nor to cause ulceration of the cornea, but was peacefully growing inward. There was absolutely no history of tuberculosis in the family.

American Medicine, February 8, 1902, has a long article on "Tuberculosis of the Eye," by Allen T. Haight, with rather exhaustive references. Strange to say, while of three hundred and eight cases collected, all of which are corneal, the peculiarities of the corneal cases are omitted. Referring, however, to several of his authorities, I find in each instance that corneal ulceration is referred to. At the bottom of page 225 of the journal (*American Medicine*) he states:

"Tuberculous infiltration of the cornea is more difficult of recognition than other parts of the eye, although primary tuberculous infiltration of Descemet's membrane is common."

In the case I report, notwithstanding the large masses of tubercle, the membrane of Descemet is not infiltrated, but pushed backward, by the growth.

CENTRAL MICHIGAN MEDICAL SOCIETY.

STATED MEETING, LANSING, FEBRUARY 13, 1902.

THE PRESIDENT, ALEXANDER D. HAGADORN, M. D., IN THE CHAIR

REPORTED BY L. ANNA BALLARD, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR C. L. BARBER, of Lansing, read a paper entitled "Puerperal Septicemia." (See page 152.)

DOCTOR S. H. CULVER: To accept the proposition that every case of obstetrics should be considered as surgical and so treated, may seem radical, yet the opinion is strongly grounded in my own mind that the sooner the principle is generally adopted the better. In no place in medicine is the law of prevention of so great importance as here. If infection is to be avoided in all cases, it must be, only by the most circumspect control, by absolute cleanliness and punctilious attendance. There is no doubt in my mind that the various types of infection arising, should not be charged to the attending physician. The younger men in the profession are forcibly impressed with the teaching of the masters and the older men are not approaching the lying-in woman with the seeming carelessness and indifference of former years. Our community is not yet ready for the establishment of the lying-in hospital, even if ever attainable or practicable, so that the circumstances under which mothers are confined will remain as now and they must be accepted and the cases treated as best they may under existing conditions. It is not always a matter of poverty so much as of ignorance and filth. In one case I recall to mind a clean bed, obtained from a neighboring farm house, was substituted for the undesirable one, which was soon reduced to ashes with the mattress and coverings in connection with it. The attending physician should be, and is quite frequently, given charge of these cases as early as the sixth month in pregnancy and at least a monthly urinary examination should be made. Then, after the immediate attention in the lying-in chamber, he should keep close watch over his patient for the following two weeks. For this attendance, I doubt if the physicians of Michigan receive an average fee to exceed ten dollars. Do you ask why obstetrics have fallen into disrepute? The merest prudence demands that the services of the obstetrician shall be equally remunerative with the surgeon having the skill and ability to adjust and treat a fractured femur correctly. Nothing can be added to the line of treatment suggested by the essayist further than to report that in my own practice, of late years, the introduction into the uterus, *postpartum*, of a fifteen grain suppository of iodoform has proven my most satisfactory preventive measure. No more vaginal examinations should be made than is absolutely necessary and douches should be given under careful if not personal supervision. In case of suspected infection of the uterine cavity, patient should be placed on a convenient table so that with the speculum under a good light, the cavity can be thoroughly cleansed and dried with sterile cotton. I then apply hydrogen dioxid freely to the mucosa and lightly pack with iodoform gauze.

DOCTOR R. E. MILLER: As I did not hear the first part of DOCTOR BARBER'S paper I do not know whether he spoke of a disease that has probably caused more fever during the puerperal period than any other, namely, gonorrheal infection. If he did not mention this etiologic factor I am sure that time would be well spent in considering it, for we are often confronted by it when and where we least expect it. Some medical writers claim that the disease can be carried for years in a latent state but still be able to cause a slight increase in the discharge of the female, so that after some extra irritation, such as labor, the soil is ripe for the development of the fever, and we have the usual symptoms coming on about four days after confinement. The treatment I have followed for a number of years is taken from the suggestion of our President, which is the employment of turpentine as a local application to the interior of the cervix and uterus. I introduce a speculum into the vagina and wipe the cervix and inside of the uterus as clean as I can with cotton. I then apply peroxid of hydrogen, which seems to loosen all foreign matter still remaining in the uterus. After this I mop out the uterus with the turpentine leaving quite a little in the uterus. Patients treated in this manner will improve so rapidly that the fever and all other unpleasant symptoms will vanish in six or eight hours from the time of first application. Very seldom am I obliged to repeat the procedure, even after the fever has run for a couple of days or more before treatment. I have noticed that patients who have a large increase in the secretion from the vulvo-vaginal glands are less liable to fever than those in whom the secretion is scanty.

Doctor F. A. Jones: Doctor Barber struck the keynote in his paper when he said, "Give me the pregnant women three months previous to labor and I will not have any puerperal fever." Why? Because I believe the majority of cases result from the condition of the system at the time of confinement. Judicious management previous to labor is as essential as is thorough preparation for any surgical operation. If the system is in proper tone all danger from puerperal fever is precluded. As to treatment of a given case, first, last and at all times free elimination by the kidneys, bowels, and skin, must be established. Antiseptic douches may be used but great results cannot be expected from local applications. Digitalis or veratrum are of no value. Large doses of quinin are given many times with great benefit. I attribute the recovery of parturient women from the septic bed oftentimes to the splendid recuperative powers of the working woman accounted for by her active life.

Doctor A. D. Hagadorn: I have long desired a germicidal agent sufficiently strong, and one that would not coagulate blood or cauterize tissue, that might be used in these cases. I believe we have it in turpentine. I wash the interior of the uterus and all lacerations of the cervical canal and perenium with turpentine, whenever I find symptoms of septic poisoning. I use this remedy in the following manner: introducing a speculum, with a stiff but somewhat flexible applicator and absorbant cotton I cleanse the uterine cavity of all discharges. I also cleanse all lacerations in the cervical canal, to the extreme angle. I consider this process important and it should be thoroughly done, and continued until nothing but fresh blood is left upon the cotton. After this I apply the turpentine freely, saturating the uterine cavity, the cervical canal, and the vaginal and perineal injuries with it, being very careful not to drop any upon the external parts. I believe this treatment when thoroughly employed makes the parts aseptic. In my opinion it not only acts upon the surface of these parts but penetrates the tissues. It does not coagulate the blood or tissues, but produces a firm and somewhat permanent uterine contraction. It has been several years since I have used the intrauterine douche or curet in these cases. The preparation of the patient and the thorough use of turpentine will, with rare exception, change the course of this dreaded disease. The temperature immediately falls, the pulse becomes slower and stronger and all septic symptoms fade away. I have used various other methods of treatment, but turpentine excels them all.

DOCTOR BARBER: In answer to DOCTOR CULVER'S question as to how I would prepare a lying-in patient, I will say that no fixed rule can be laid down for no two patients present exactly the same physical conditions or environments. As a general rule, for weeks prior to confinement I put my patients upon an elixir of black cohosh—hydrastis pulsatilla and senna—and in case that does not keep the eliminants sufficiently active I supplement this measure with a glass of hot water every two to four hours and a saline cathartic at night. As I said before I regard every case of confinement a surgical case, and the success of a surgeon depends upon the preparation of his patient and subsequent treatment as much as or more than upon the operation itself.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
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AND
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Brain Abscess in Typhoid Fever Due to Bacillus Typhosus. —McClintock (*American Journal of Medical Sciences*, April, 1902). A review of the literature shows that nineteen cases of meningitis complicating typhoid fever have been reported, in all of which the bacillus typhosus was present, in the great majority in pure culture; also five cases of brain abscess in none of which it was found. The writer gives in detail the history, physical signs and symptoms of a case of typhoid fever which developed brain abscess, died and came to autopsy. The anatomic diagnosis was suppurative basillar meningitis and abscess of the left temporal lobe. A very careful bacteriologic examination showed that the organism obtained from the brain abscess was the true bacillus typhosus. It was differentiated from the *colon group* by cultural appearances and reactions; from the *Gaertner group* by its growth on gelatin and in the sugar and milk media, as well as by the results of agglutination experiments. J. R. A.

An Improved Method of Percussion. — Plesch (*Münchener Medicinischer Wochenschrift*, Number XV, 1902) describes a modification of the ordinary finger, finger method of percussion. The pleximeter finger instead of resting with the palm surface upon the surface to be percussed, is flexed to a right angle at its first interphalangeal joint, the tip of the finger resting firmly upon the spot to be percussed, and the percussing finger striking the distal epiphysis of the first joint of pleximeter finger, care being taken that only the tip of the percussed finger touch the body percussed. Plesch claims superiority over the old method for the following reasons: (1) A smaller area is set into vibration; (2) the contact of a large surface of pleximeter finger is avoided, thereby not counteracting or modifying vibrations; (3) the force being applied in a perpendicular axis there is less chance of a transmission of the force to neighboring organs. The writer claims greater accuracy and precision in outlining the various organs, especially in determining (1) the lower lung border from the liver on the right side, and from the stomach tympany on the left; (2) in determining the absolute heart dullness and the limits of pulmonary excursions during respiration; (3) retraction of apices not otherwise detected; (4) infiltrations and cavities which heretofore have not been recognized. In abdominal percussion he claims that the one finger can be pushed down further than can the whole hand or whole finger, thus permitting the outlining of deep structures in the abdominal cavity. D. GRIM.

A Simple Method for Bacteriologic Examination of Milk Samples.—Johnston and Jones (*Montreal Medical Journal*, February, 1902) report observations they have made with a view to simplifying the technique for the bacteriological examination of milk. The method is employed by the Board of Health of the Province of Quebec, and briefly is as follows:

Instead of using the dilution method which necessitates a graduated sterile pipette the author employs a wire of number twenty-five gauge, which is formed into a loop over a number eighteen knitting needle. This takes up with great constancy one to one thousand cubic centimeters of milk, the most convenient unit to work with. By a series of comparative tests the authors find that while the dilution method gives somewhat more uniform results, the difference is so slight that for practical purposes the loop method is sufficiently accurate.

The outfit is simple. It consists of a loop of aluminum wire furnished sterilized in a corked test-tube also sterile. This is mailed in a mailing case together with a flat-sided Blake vial containing nutrient gelatin ready for use, a tag to serve as a label, and a slip of printed directions from which the following are extracted:

(1) Melt the gelatin by warming it just enough to make quite fluid; do not heat it strongly.

(2) Inoculate the melted gelatin with one loop full of milk by means of the wire loop. Take care to avoid contaminating the loop by contact. Shake up the vessel containing the sample. Avoid taking the sample from surface cream or from sediment.

(3) Distribute the milk uniformly throughout the gelatin by sharply rotating the bottle without shaking it. Let the bottle lie on its side till the gelatin is firm. Take care that no gelatin reaches the cotton stopper.

(4) Fill the stoppered tube (tube that contained the wire) with a sample of milk for control.

These outfits are supplied to physicians and milk dealers by the Board of Health. A source of error of which little is generally known is the reduction of bacteria which occurs when milk is frozen. This must be guarded against.

First-class milk should not contain more than ten thousand bacteria per cubic centimeter.

Second-class milk, with ten thousand to one hundred thousand bacteria, may be still useable.

Third-class milk, with one hundred thousand to one million bacteria, is decidedly poor, and had better be Pasteurized.

Fourth-class milk with over one million bacteria has deteriorated to an extent which makes it objectionable as a food.

[The method is so simple that it is hoped that the author's efforts to popularize its employment may be realized.] D. M. C.

Typoid Fever Complicated by Thrombo-Phlebitis of the Long Saphenus; a Severe Hemorrhage from the Bowel; Infection of the Clot; Recovery.—Armstrong (*Journal American Medical Association*, March 29, 1902) reports a case which presented most of the typical symptoms of typhoid fever, including the diazo reaction. The case ran a mild course, until the twenty-seventh day, when phlebitis developed in the left long saphenus. At this time the temperature reached 105.2°, pulse 116. In the afternoon of the same day the patient passed from the bowels, with considerable force, two litres of dark blood. The third day after the hemorrhage the temperature and pulse gradually fell. [The author does not give the temperature and pulse observations before, during, or immediately after the hemorrhage].

One week from the day of the hemorrhage the patient had a pronounced chill, lasting forty minutes, temperature 105.5°, pulse 135, and profuse sweating. Pain in left leg which had by this time nearly ceased, grew worse. One week after first chill a second similar to the first occurred. After both chills the skin presented all over the trunk and especially over the lower abdomen and back a fine pinhead pustular eruption with considerable itching.

The case is interesting because of its mild form having been followed by so many important complications. D. M. C.

SURGERY.

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Treatment of Dislocation of the Clavicle through an Open Wound.—Moore, of Minneapolis (*Annals of Surgery*, May, 1902), calls attention by illustrations to the obstacles which interfere with a complete reduction of an acromial dislocation of the clavicle. The acromio-clavicular ligaments were torn from the clavicle and turned under the end of the bone thus holding it up so that complete reduction could not take place without operative interference.

An incision four inches long was made exposing the end of the clavicle and joint, the opposing ligaments were cut to allow the end of the clavicle to fall into place. Holes were drilled through the end of the clavicle and acromion process and silver sutures were passed to hold the bone in place. The superior acromio-clavicular ligament was sutured in place with catgut. The patient was kept in bed on his back for three weeks. At the end of five weeks the wire stitches caused some irritation and were removed. The result was perfect. The author suggests the preference of cromicized kangaroo tendon over silver wire for sutures to avoid irritation and necessitate removal. C. G. D.

GYNECOLOGY.

BY REUBEN PETERSON, A. B., M. D., ANN ARBOR, MICHIGAN.
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A Clinical Review of Deciduoma Malignum.—It is of the utmost importance that the general practitioner, as well as the specialist, should have a definite knowledge regarding this most important disease. L. J. Ladinski has considered the question from the clinical side in the April number of the *American Journal of Obstetrics.* He reports a case of deciduoma malignum met with in his own practice and reviews one hundred thirty-two cases of the disease which he has been able to collect from the literature.

Sänger was the first to call attention, in 1888, to this class of tumors, and suggested that the name deciduoma malignum be applied to them. According to Ladinski the growth may be classified according to one of three principal views. First, the opinion of the English school that these tumors are sarcomata and of connective tissue origin and that the elements of the disease have existed in the uterus independently of pregnancy, but are modified by it. Second, the original theory of Sänger, when he proposed the name of deciduoma malignum, that the growth is the result of changes in the decidual cells, that is to say, that it is a sarcoma developing in the products of conception. Third, the view of the large majority of German writers that the growth is the result of the proliferation of the epithelial layers covering the chorionic villi, hence an epithelioma.

Thus it will be seen that the question of whether this neoplasm arises from maternal or fetal structures is still a mooted one and must remain so until the origin of the epithelial covering of the chorionic villi is determined with some degree of accuracy. Ladinski is of the opinion that the term deciduoma malignum first proposed by Sänger, and which has since been applied to the majority of cases, is the most appropriate one.

Etiology.—Pregnancy is an absolute concomitant or precursory condition of the deciduoma malignum, since in some form or other it preceded the disease in all the cases recorded, with a single exception, and that is a doubtful case. In one hundred twenty-eight cases in which the nature of the pregnancy is recorded, sixty one cases followed hydatid mole pregnancy; forty-two followed abortion; twenty eight followed labor at term; four followed premature labor, and three renal pregnancy. Inasmuch as forty per cent of the cases of this disease followed mole pregnancy, it is important to consider the relationship of the two conditions. In thirty-three cases the average duration of the mole pregnancy was four months, showing that the length of time of the presence of the mole in utero had no influence on the disease.

Age.—The average age of one hundred twenty-four cases was thirty two years. This corresponds with the generally accepted average age of reproduction and differs materially from the average age of women suffering from carcinoma of the uterus, which is given by Kruckenberg as fifty-four years. So far as the age is concerned, therefore, it must be concluded that the disease in question is not of the ordinary malignant type, but possesses a malignancy dependent upon and associated with the reproductive function. In ninety patients the average number of pregnancies was found to be 4.2. This tends to show that the number of pregnancies does not predispose to this disease as the average number of pregnancies corresponds to the average number of pregnancies in parturient women. The average lapse of time between the appearance of symptoms and determination of a previous pregnancy is eight weeks, seven weeks and five weeks after mole pregnancy, abortion, or labor at term respectively.

Symptomatology.—Hemorrhage is almost invariably present and appears without any apparent cause. It is marked by its extreme irregularity as to frequency, duration and quantity. The bleeding from a deciduoma malignum does not respond to the usual modes of treatment. In the intervals of the hemorrhages there is usually a serous discharge.

Pain.—While pain is but infrequently referred to in the collected cases, Ladinski is of the opinion that it was more frequently present, but not noted. The uterus was found enlarged in nearly all the cases studied. It was soft and had the feel of a uterus with chronic hyperplasia. In the early stage of the disease anemia may result from the excessive hemorrhage, but later it becomes so profound as to be entirely out of proportion to the amount of blood lost.

Characteristic tumor.—The growth is peculiar and distinctive. It begins as one or more minute, dark colored or reddish nodules springing from the endometrium either by a broad base or pedicle, invading and penetrating the uterine muscularis toward the peritoneal surface. It is soft, spongy, friable and bleeds very profusely on touch. There is a characteristic peculiarity of the disease in the formation of early metastases as forty-seven cases were found to have metastases in the lungs and forty in the vagina. Ladinski emphasizes the fact that even more than in incipient carcinoma of the uterus microscopical examination should not be solely depended upon for a diagnosis, but that particular attention should be paid to the clinical signs and symptoms. The clinical features which should aid in arriving at a diagnosis are:

(1) History of recent parturition or abortion, especially if a hydatid mole has been discharged or placenta retained.

(2) Profuse hemorrhage occurring at irregular intervals, without apparent cause, and not amenable to the ordinary means of treatment, and which recur in spite of repeated curetting; the presence of a constant sanguineous discharge during the intervals of hemorrhage.

(3) A persistently large and hyperplastic uterus and cervix with a patulous os.

(4) Pain in the pelvis.

(5) Anemia, rapid loss of flesh and strength and cachexia.

(6) Characteristic nodule in interior of uterus in the early stage.

(7) The presence of metastatic deposits, especially in the vagina and lungs, the latter producing cough and bloody expectoration.

Prognosis.—Deciduoma malignum is a very fatal disease. In one hundred twenty-four cases there was a mortality of fifty-nine per cent. In sixty-six cases a radical operation was performed, which seems to have lowered the mortality rate from seventy-three per cent in the fifty-two cases collected by Dorland to the fifty-nine per cent shown by the author's statistics.

Treatment.—Because of the rapid progress of the disease, complete extirpation of the uterus and vaginal metastases should be made as soon as the diagnosis has been established. The case should be operated on even when metastic deposits are suspected in other parts of the body, for cases showing these symptoms have recovered. Above all, the uterus of every patient whose history is the least suspicious should be subjected to a curettage for microscopic examination and to a thorough digital exploration at the earliest possible opportunity.

OBSTETRICS.

BY THOMAS STONE BURR, A. B., M. D., ANN ARBOR, MICHIGAN.
DEMONSTRATOR OF OBSTETRICS AND GYNECOLOGY IN THE UNIVERSITY OF MICHIGAN.

Shoulder Presentation Occurring Twice in the same Patient. —Hammond (*Annals of Gynecology,* April, 1902). The fact that shoulder presentation occurred twice in the same patient is of interest. The etiologic factors were pendulous abdomen, relaxed abdominal wall, and comparatively small fetus in each instance. The first fetus was dead before the onset of labor. In the second the cord pulsated feebly at the time of examination, the child dying before delivery. An interesting feature was the baptism of the second child in utero by means of a Davidson syringe. Hammond cites the frequency of dorsoanterior as compared with dorsoposterior positions. In both his cases the fetus took the former position. In each case the arm prolapsed, and was pushed up after being secured by a fillet. Version was then done. Obstetric rules as to which foot to grasp are practically to be disregarded. Sieze the foot which can be reached, and bring the child down with the back to the front. In the first instance the head was successfully delivered by the Smellic-Veit method; in the second a high application of forceps was necessary. The deliverances were made in an Italian hovel, but by an observance of rigid aseptic and antiseptic technique, no infection resulted.

The Significance of Albuminuria Occurring in Pregnancy.—Morse (*American Journal of Obstetrics*, April, 1902) concludes an article on this subject as follows: "The weight of evidence seems to be against the reliability of albumin (in the urine) as a symptom of serious import (in pregnancy): careful urinary analysis shows of relation between the amount of urea excreted and the development of symptoms of toxemia and eclampsia." Morse mentions the many conditions in which albuminuria may occur. It may be found in the urine of healthy individuals. Eclampsia is a toxemia, due to a deficient elimination. The presence or absence of albumin is not a sufficient ground upon which to base a prognosis as to the occurrence of eclampsia. Five hundred women out of ten thousand have albuminuria during pregnancy. Of these five hundred sixty only develop eclampsia. In one hundred and eight cases of eclampsia collected by Gerster, careful and repeated examination showed no albumin in the urine at any time. The estimation of the amount of urea excreted is of the greatest importance. Thirty-five grams per day is excreted by the normal individual. When this amount is decreased for any length of time in the pregnant woman, signs of toxic disturbance will soon supervene. Morse urges the practician to do more than simply test for the presence of albumin. The occurrence of casts, and especially an estimation of the urea will shed much more light upon the patient's condition.

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
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Care of the Mouth.—(*The Southern California Practitioner*, February, 1902). Perhaps no part of the child's body is so often neglected as the mouth. A mother will religiously bathe her child and keep its body clean, and neglect to clean its mouth. An infant should have its mouth cleansed with a soft cloth, wet in a weak solution of boric acid, after each feeding, and thus prevent infantile sore mouth. When the child advances in age and has teeth a soft brush should be used twice a day at least. During sickness it should be done more frequently night and day. If gums are soft and spongy and inclined to bleed, a little tincture of myrrh will harden them. Every portion of the mouth should be throughly cleansed and if the teeth are sensitive the water should be slightly warmed.

Chronic Tubercular Adenitis.—Friedlander (*Archives of Pediatrics*, April, 1902) calls attention to the treatment of enlarged bronchial lymph nodes in children and says three drugs are of special value for chronic tubercular adenitis, namely, iodid of iron, cod-liver oil and creosote, and while little is availed by medicines alone, much may be accomplished if combined with good food, good air, and rest. The food must be nourishing, easily assimilable, and such as the child will take, the chief aim being to build up the nutrition of the child. The physician must be reasonable but firm enough to carry out a prescribed and fairly restricted diet. He says in general, a diet of milk, eggs, meat and bread, avoiding excessive starch. These patients must be urged to remain outdoors most of the time, sleep in well-ventilated rooms, and be encouraged to take a great deal of rest.

Pernicious Anemia in Infants.—Rotch and Ladd (*Archives of Pediatrics*, September, 1901) say that in considering the diagnosis in these cases we are forced to acknowledge that signs which are almost pathognomonic in adults lose some of their significance in infants owing to the instability of the blood-making function, as in infants it has not reached its full development. We know that megaloblasts, normoblasts, macrocytes and poikilocytes may occur in grave anemias which are not pernicious, but their presence together with the typical clinical symptoms are of great importance in diagnosis.

The authors would emphasize the following in arriving at a diagnosis: Insidious onset with moderate and paroxysmal attacks of indigestion; absence of any possible demonstrable cause for a secondary anemia; extreme pallor with loss of strength; the presence of pronounced typical characteristics of the blood of pernicious anemia; elevation of temperature for months; absence of glandular or splenic enlargement; absence of any degree of leucocytosis; and they conclude that it will be difficult to make a diagnosis unless the above typical picture is presented until a much larger number of cases is studied.

OPHTHALMOLOGY.

By WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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Implantation of a Gold Ball for the Better Support of an Artificial Eye.—Fox (*The New York Medical Journal*, January 18, 1902). It is now six years since I implanted the first glass ball in a patient in whom the eye had been removed twelve years before. Eighteen months ago I devised the present method, which I can now safely recommend. If the operation is to be performed in the right orbit I carry on the details as follows:

The eyelids are kept apart by a speculum, the conjunctiva is then grasped *up* and *in* above the inner canthus, and the tissues are well pulled out. I then pass a Beer's knife or a curved keratome through the tissues, somewhat obliquely and well down into the orbit. This opening must be made large enough to push the globe in the opening behind the tissue, conjunctiva. et cetera. This starts the opening, which I enlarge with curved scissors, separating the tissues from the cellular tissues around the orbit, thus giving me a large pouch into which the globe can be inserted. I have discarded glass and silver balls and only use gold balls of eleven, twelve, thirteen and fourteen millimeters in diameter.

The gold ball is inserted through the opening and retained in place by a shell which I have modelled after an artificial eye, and which I call a "conformer." I have three sizes for various sized orbits. I close up the incision with two stitches, then place the conformer over the buried ball, and by gentle manipulation on this metal rotate the ball into place. The circular opening in the conformer allows the gold ball to fit the space which will be covered by the cornea of the artificial eye. The eyelids are then closed over the conformer which is left in place twenty-four hours. The eyelids likewise help to maintain the ball in position. I have these conformers made of metal gold-plated.

The results obtained by this method are perfect; no secondary trouble follows,—all healing up by first intention, and the two stitches are taken out on the third day.

It can be readily understood now that the gold ball cannot break through the center of the conjunctiva, and as the opening is out of line of pressure, it soon closes up. If the operation is to be performed on the left orbit, the incision is to be made *up* and *out* above the external rectus muscle, and the dissection carried out as described above.

Cataract Extractions in the New York Eye and Ear Infirmary for 1901.—In the eye department there were 4,041 operations. Of these 166 were operations for uncomplicated senile cataracts; 109 of these were simple extractions; 59 were extractions with iridectomy.

Evidently the simple operation is not in great favor at the infirmary.

The *Ophthalmic Record*, commenting editorially says: "The surgeons of the infirmary become very skillful as cataract operators, and they do their operations in an institution where the patients can be most carefully handled, and where they are under the absolute charge of the surgeon—where if the surgeon finds a prolapsed iris at the end of twenty-four hours and it is necessary to give a general anesthetic to excise it, it can be done without causing a hubbub; considering these facts, and remembering that at the infirmary last year the cataract extractions were done without iridectomy in only two-thirds of the cases, the oculist will pause before doing a single extraction on a private patient. The report shows ten iridectomies for prolapse of iris after cataract extraction."

NEUROLOGY.

BY AUGUSTUS WRIGHT IVES, M. D., DETROIT, MICHIGAN.

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Diagnosis of Locomotor Ataxia.—Brown (*Medical Fortnightly*, January, 1902) says locomotor ataxia or tabes dorsalis was formerly described pathologically as a posterior spinal sclerosis, and the disease is often called by that name, but since the acceptance of the neuron theory we consider it a primary degeneration of certain sets of sensory neurons whose neuraxons run in the columns of Goll and Burdach. We know that the sclerosis is only a secondary process, a replacing of the degenerated nerve tissue by connective tissue. He emphasizes the fact that the "*symptom* locomotor ataxia is of minor importance in the recognition of the *disease* locomotor ataxia, for this symptom comes late. According to their importance he would place the symptoms as follows: (1) Loss of patella reflex; (2) Romberg symptom; (3) Argyll-Robertson pupil; (4) lightning pains; (5) loss of function of bladder and sexual organs. Very few patients come to be treated for the ataxia; they come for rheumatism in the legs, gastric or other crises—called often colic or biliousness, lightning pains, progressive blindness, or indolent ulcer. Strumpell says that tabes stands in the same relation to syphilis as does diphtheritic paralysis to diphtheria.

The author sums up his article as follows: (1) Locomotor ataxia is one of the most common of the chronic nerve diseases. (2) It is often unrecognized for years, although the most easily recognized of all cerebrospinal nerve lesions. (3) To avoid overlooking this disease examine every patient for knee-jerk and pupil reaction; if both are absent the patient has tabes. (4) Examine further for evidence of tabes in any patient showing the following symptoms: (*a*) difficulty in walking, especially in the dark; (*b*) gradual failure of vision, or double vision, or a transient squint; (*c*) lancinating pains, or neuralgic pains in legs, sciatica, chronic rheumatism; (*d*) difficult or urgent urination, or incontinence of urine or feces, or numbness of anal region; (*e*) diminution of sexual power; (*f*) sluggish ulcer on foot or leg; (*g*) large painless swelling of joint; (*h*) spontaneous fracture of long bone, or fracture from trivial cause; (*i*) numbness of one or both little fingers, or of ulnar sides of forearms.

THERAPEUTICS.

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AN article (*Therapeutic Gazette*, December, 1901) entitled "Methyl (Wood) Alcohol as a Cause of Blindness—Should it be placed on the list of Poisons ?" by Doctor Swan M. Burnett, is one of great importance. In it the author first calls attention to the familiar fact that a number of toxic agents such as quinin, tobacco and ordinary alcohol are particularly prone to attack the nervous apparatus of vision. He then states that within a short time another and a most active offender in respect to this tendency has been found to exist in the substance methyl or wood alcohol. In this country the first case presenting serious injury of vision from ingestion of wood alcohol was reported by Doctor J. M. Ray, of Louisville, Kentucky. This occurred in 1896. Since that time, however, numerous reports of blindness and even death following absorption into the system of this substance have been published.

In some cases instead of blindness there results a condition of severe gastrointestinal and nervous irritation. This effect as well as that upon the eyes may be followed by death.

An ordinary case of poisoning from wood alcohol presents the following chain of symptoms: Between twelve and forty-eight hours after the alcohol has been taken dimness of vision is noticed by the patient, and in a few hours more this may develop into complete blindness. The pupils dilate and do not respond to light. In some cases slight soreness may be felt in the orbit particularly when the eyeball is moved, while in others this symptom is wholly lacking. If the dose of the poison has been large, nausea, vomiting, vertigo and even unconsciousness may come on and in some cases death may follow.

Occasionally there is recovery from the symptoms just mentioned including the loss of vision. This desirable result, however is very rare. As a rule the symptoms become progressive and prominent changes in the eye itself appear. The first of these is a central scotoma, which quickly obliterates the whole field. From this condition there is occasionally a temporary relief. Some degree of vision may return and continue for a variable length of time. But this relief is at best of little value for the next change is that of atrophy of the nerve. When this has taken place, and it generally does so soon after the first week, the blindness, which is generally complete, is permanent.

The amount of wood alcohol that must be taken to produce the above effects varies with different individuals. As little as half an ounce, however, has been known to cause blindness.

The sources from which the victims of the poisoning have derived the alcohol are various. One of the most common is essence of Jamaica ginger. Others are essence of peppermint and similar substances used in the households. These mixtures, usually considered harmless, become poisonous from the fact that unscrupulous or ignorant manufacturers use wood instead of grain alcohol in their preparation. The former costs only about one-third as much as the latter.

It is not only those who have taken the poison into their stomachs who suffer. Cases have been met with among workmen who have been exposed to the fumes of wood alcohol while working in an enclosed place with varnish or shellac which contains methyl alcohol.

The poisonous principle that causes the disastrous effects mentioned has not been isolated as yet. Whatever it is, it is present in all grades of wood alcohol. The finest of these, the so-called Columbian spirits, has been known to cause blindness in numerous instances.

So far as treatment of poisoning by wood alcohol is concerned little can be said. Nothing has been known to ward off blindness when once it has begun to develop. This limits our efforts to attempts at prophylactic rather than curative treatment. Of course in the gastrointestinal form treatment of symptoms will be demanded according to their nature.

Doctor Burnett closes his able paper with these words: "In our capacities as conservers of the public health it seems to me our duty plainly points to the agitation of this question until our authorities are awakened to the necessity for protecting the community against the ravages of such a subtle foe. The people themselves should be informed through every possible channel of the highly dangerous nature of the drug when taken internally. It should be placed upon the list of poisons, and when sold, labeled as such."

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

Doctor Adami's Criticism of Koch.—"It is refreshing" (*Philadelphia Medical Journal*, February 23, 1902) "to find an article written by a man amply qualified for the task, which consists of a careful and intelligent criticism of a certain group of articles that have recently been exciting considerable attention, partly because to the vast majority of physicians the subjects discussed in them were novel, partly because they are of the utmost practical importance to the morbidity and mortality of the population. Inspired by the recent publication of Koch, which is the principal object of his analysis, Adami has gone carefully over the whole subject of the relation of human to bovine tuberculosis, and has analyzed the literature and the divergent views of different experimenters; and we learn from his paper, which we publish as a special article in this issue, that, in spite of the vigor of the arguments, the actual results of experimentation are not essentially contradictory. Thus, all observers agree that the human tubercle bacillus is comparatively slightly virulent for cattle (Ravenel has since shown that this is not invariably true); that varieties of the human tubercle bacillus may be exceptionally virulent; that the bovine tubercle bacillus is not so virulent for human beings as the human tubercle bacillus, but that, nevertheless, either species may be affected by microorganisms derived from the other under certain circumstances. The important fact derived from this and the studies of tuberculosis in fish, chickens, et cetera, is, that we have varieties and not species of tubercle bacilli. Therefore, the advice of Koch to disregard bovine tuberculosis as a cause of infection in human beings is not only false, but was, as Adami says, little less than criminal on his part.

Vaccination will Prevent Smallpox.—There is no better illustration of the efficacy of vaccination in modern times than that shown by the experience at Porto Rico (*Monthly Bulletin of the Indiana State Board of Health*, April, 1902), and it should go far to remove all existing doubts relative to this great prophylaxis. Porto Rico has a population of about 960,000, and for ten years prior to American occupation, as shown by careful statistics of the Spanish, there were six hundred twenty-one deaths per annum from smallpox alone. As soon as the American troops took possession the entire territory was divided into districts and the whole population was carefully vaccinated under the supervision of the medical officers. This work was completed July 1, 1899, and since that date only three deaths have occurred in Porto Rico from smallpox. This work was done under military regulation, and hence can be considered wholly reliable and accurate. This shows a saving of over six thousand human lives in ten years' time, besides the great expense attendant upon the care of the sick comprising a much larger number, as only a certain per cent of those attacked with smallpox died. There is probably no more positive proof of the value of compulsory vaccination than this in the whole history of the great discovery of the immortal Jenner. The report shows that out of 960,000 inhabitants 860,000 vaccinations were performed.

PATHOLOGY.

By ALDRED SCOTT WARTHIN, Ph. D., M. D., Ann Arbor, Michigan.
ASSISTANT PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

The Changes Occurring in Striped Muscle in the Neighborhood of Malignant Tumors.—Anzinger (*American Journal of the Medical Sciences*, February, 1902) has attacked the problem of malignancy from the standpoint of the changes produced by the growth of sarcoma and carcinoma into neighboring normal structures, particularly with reference to striped muscle. Sixty-one cases of carcinomatous and sarcomatous infiltration of striped muscle were examined, including thirty cases of mammary cancer infiltrating the pectoral and fifteen cases of epithelioma of the lip. Twelve cases of sarcoma-invasion of muscle were also studied. As a result of this investigation Anzinger concludes that the changes produced in striped muscle by invading malignant tumors fall into two classes, retrograde and regenerative. To the former belong: atrophy, morphological changes, vacuolization, fissuring, longitudinal fibrillation, lacunar erosion, cloudy swelling, simple necrosis, Zenker's necrosis, polychromatophilia, nuclear proliferation and vacuolization, leucocyte infiltration of the perimysium, hemorrhage, edema, and vascular changes, such as endarteritis, periarteritis, and hypertrophy and hyperplasia of endothelium. As regenerative changes he noted a doubtful hypertrophy and the presence of regeneration forms. He regards the retrograde changes as more marked in the case of carcinoma-invasion than of sarcoma, but as showing no essential differences in kind. The changes produced by sarcoma appear to be chiefly mechanical; those due to carcinoma to be mechanical, nutritive and metabolic. Evidences of toxic action are more marked in the case of the latter than in sarcoma. Carcinoma acts more as an active injurious foreign body upon muscle than does sarcoma. This difference may possibly be explained as due to the different biological relations of the tumor types. Carcinoma is epithelial in origin, sarcoma mesoblastic, the invaded muscle is also mesoblastic. In the invasion of muscle by sarcoma the antagonism between the two tissues must be less marked than in the case of carcinoma, since the sarcoma cells are genetically mesoblastic and similar in their tendencies to those of muscle. Regeneration forms are of much more frequent occurrence in the case of sarcoma and this may be taken also as an evidence of the less injurious effects of the latter. Carcinoma is, therefore, more malignant in its action upon muscle than sarcoma, because of its different biological relations, the different nutritive and metabolic conditions, and also probably because of the formation of poisonous products by the cancer-cells. With regard to this latter point no direct evidence was obtained, but it is very probable that the changes about carcinoma are for the greater part to be interpreted as toxic in nature. In opposition to this theory no specific changes are found, all of the muscle conditions produced by malignant growths having been observed in other pathological states. The work of Anzinger, while of great value because of the results gained, is also important as evidence of a tendency to study the characteristics of malignant tumors from a standpoint other than that of the parasitic theory.

The Histopathology of Lupus Erythematosus.—Schoonhead (*Archiv für Dermatologie and Syphilis*, Band LIV, seite 163). From a study of fresh material obtained by excisions in eleven cases of this disease and treated by various staining procedures Schoonhead concludes that lupus erythematosus presents such distinct and characteristic pathological features as to warrant its classification entirely apart from all other affections of the skin. In its earliest stages the disease is localized in the lower portion of the dermis or upper part of the subcutaneous tissue. The sebaceous and sweat glands are early involved, circumscribed areas of small-celled infiltration and connective tissue proliferation being found about them. As the disease progresses the areas of infiltration lose their circumscribed character and become diffuse, there is an extensive connective tissue hyperplasia, and in the epidermis covering the affected area there is a tendency to an abnormal cornification. After a time the proliferative changes come to a stand-still, the infiltration disappears or becomes greatly lessened and there is a subepithelial scarformation. At this stage marked degenerative changes are found in the elastic fibres and it is this process which is regarded by Schoonhead as forming the unique feature of the disease. The changes in the elastic fibers bring about the scar-like atrophy peculiar to the later stages of this affection. This atrophy is confined chiefly to the upper stratum of the dermis, the scars for this reason being soft and superficial.

Early Diagnosis of Uterine Cancer.—Abel (*Archiv für Gynäkologie*, Band LXIV, Heft 2). As an aid in the differential diagnosis of benign epithelial growths and the early stage of carcinoma, Abel calls attention to peculiar changes occurring in the elastic fibers in and around malignant foci. Under the high power the nests of cancer cells are seen to be traversed in all directions by elastic fibers passing between the cells. These fibers present a peculiar broken appearance as if they were undergoing some form of degeneration. The impression is conveyed that they are being destroyed by the cancer-cells, not simply pushed aside. Such changes in the elastic fibres are never found in any other neoplasm of the uterus, condyloma, tuberculosis nor in the connective-tissue hyperplasias. For this reason Abel looks upon the occurrence of this change as constituting an important diagnostic point in beginning carcinoma or in cases wherein the differential diagnosis is doubtful.

EDITORIAL COMMENT.

THE CURABILITY OF BRIGHT'S DISEASE.

THE spontaneous cure of acute nephritis is of sufficiently frequent occurrence to warrant the assumption of a tendency in this direction. Not so with the chronic form, however. The almost inevitable result of the chronic form of this disease in the past has stamped it as practically incurable in spite of all known medical means. The course of the malady in different cases is well understood to vary and this without marked effect of remedial measures. Some cases are protracted while others progress to a more speedy dissolution. The final outcome is, however, almost hopeless. Such being the state of the medical mind in the past it is truly encouraging to note the claims and reports recently made by EDEBOHLS concerning the effect of renal decapsulation.

The story he tells of the development of his new ideas on the subject is very interesting. It begins with an operation for nephropexy done in 1892. The favorable results obtained in four such cases prompted him in 1899 to propose the treatment of Bright's disease by practically the same operation that he had accorded cases of movable kidney. In a communication upon this subject to the *Medical Record*, he describes eighteen cases which he has thus treated by operation. At first he supposed that the anchoring of the kidney sufficed for curing the disease. The manner in which nature effected a change was later observed in three cases upon which operations had been previously performed. It was found that strong connective tissue had formed and attached the kidney to its new surroundings, and that a rich arterial supply had also formed in these adhesions, having the effect of an arterial hyperemization of that organ. Within ten days, it was reasoned, the interstitial or intertubular inflammatory products and exudates began to be absorbed, "thus freeing the tubules and glomeruli from external compression, constriction, and distortion, and permitting the reestablishment in them of a normal circulation." The operation is claimed to only initiate the regenerative process. The cure is a matter of months as is evidenced by the final disappearance of albumin and casts from the urine. As a result of the author's experience gained from the one hundred ninety-one cases upon whom he had performed nephropexy, he has acquired a high degree of confidence in the benefits of this operation and feels warranted in operating upon any patient with chronic Bright's disease who has no incurable complication, or one absolutely forbidding the administration of an anesthetic, and whose probable expectation of life, without operation, is not less than a month.

Since this idea was first broached to the profession scant notice has been taken of it. Support has, however, not been wanting, FERGUSON having seconded the proposition made by EDEBOHLS. The reports certainly speak for themselves and the desire for the cure of these desperate cases prompts the hope that the statements made by EDEBOHLS may soon crystallize into accepted facts. If this becomes realized then the similar treatment of cirrhosis of the liver, as already suggested by the same author, will naturally follow.

ANNOTATIONS.

DIVORCES IN MICHIGAN DURING THE YEAR 1899.

THE secular newspapers parade the products of the divorce mill to the extent of a daily acquaintance, and we wonder at the great number of unhappy alliances, about which we hear and read; but we venture to state that the real volume of this business is by no means generally understood, and the statistics are sufficient to cause wide astonishment.

Only eight or nine of the states collect and publish their statistics of marriage and divorce. The third annual report of these occurrences in Michigan has just been issued. According to the official registration there were 6,548 divorce cases before the Michigan courts during the year 1899. Of this number 2,328 divorces were granted, only 35 were refused, 173 were withdrawn, and but 503, or less than 25 per cent of those granted, were contested. During the same year, 21,877 marriages occurred in this state. The ratio of divorces applied for to the whole number of marriages is about as 1 to 6, and the ratio of those granted is about 1 to 9 of the marriages.

The principal causes of divorce, according to the records of these cases, has been, in the order of their importance, cruelty, desertion, nonsupport, drunkenness, and adultery. The first named cause was held to exist in 49.6 per cent of the cases and indicates in a general way the vicious character of our population. Desertion affected 33 per cent, nonsupport 27.9 per cent, drunkenness 4.6 per cent, and adultery 3.7 per cent of the number of the divorces granted. Cruelty was pleaded by 44.9 per cent of the husbands and 51.7 per cent of the wives. Desertion by 48.3 and 26.2 per cents respectively. Nonsupport by 1.5 and 39.4 per cents, drunkenness by 2.1 and 5.7 per cents, adultery by 8.9 and 1.5 per cents.

This report shows also the duration of marriage prior to divorce. 17.7 per cent of the divorces were granted during the first five years of marriage. The same percentage holds for the next four years. 17.3 per cent occurred during the next five years. For the succeeding periods the percentages are correspondingly less. One home was destroyed by this means after more than fifty years of wedded life.

In nearly half of the families there were fortunately no children. In the remainder there were from one to fourteen children in the family, a total of 2,381 having been affected.

DOCTOR FELT'S EXPERIENCE.

THE paper contributed in this number by DOCTOR FELT is interesting for two reasons. The recoveries he has reported speak loudly for the efficacy of the treatment, heroic though it may be. In this instance it is noteworthy that the doctor first applied the remedy to himself. His own recovery was not exceptional, since the results in the other cases were almost uniformly good. The other interesting feature of the matter is the disinclination of the doctor's friends and some of his patients to accept his method of treatment. His experience illustrates the lack of cordiality which other scientific discoverers have also met.

MEDICAL NEWS.

A MEDICAL BENEFACTOR.

DOCTOR WILLIAM WARING JOHNSTON, the Washington practician who died at Atlantic City, March 21, 1902, was certainly a benefactor to mankind. It is stated that the charitable service rendered by him during his medical career, if computed at the lowest rates of the District Medical Society, would aggregate a money value exceeding one million dollars. At the time of his demise he was accredited the most prominent and successful physician in the Capital City. In memory of this illustrious Aesculapian, the Medical Society of the District of Columbia recently held a public meeting in the large hall of the Columbian University, which was crowded beyond standing room. Among the announcements was one to the effect that steps had already been taken to endow a Johnston Hospital. Eulogies, which will be published in pamphlet form, were pronounced by Doctors S. S. Adams, A. F. A. King, H. D. Fry, G. M. Kober, William Osler, and Walter Reed. Doctor Johnston was the attending physician to the late James G. Blaine, and was summoned in consultation in the case of the lamented President McKinley. He was born in Washington in 1843, and graduated in medicine at the University of Pennsylvania in 1865. He served as interne in Bellevue Hospital for one year, and later pursued postgraduate study at Edinburgh and Paris. The doctor enjoyed a large society and hospital connection, and was professor of the theory and practice of medicine in the Columbian University.

MINOR INTELLIGENCE.

"INFECTED Ovarian Cysts" was the title of a paper Doctor Reuben Peterson, of Ann Arbor, read by invitation before the Detroit Medical Society, April 9.

MEDICAL inspection, including eyesight and hearing, has recently been instituted in the public schools of Newark, New Jersey, Syracuse, New York, and Toronto, Canada.

HEALTH COMMISSIONER LEDERLE, of New York, has asked for $1,025,000 to expend in erecting hospitals for infectious diseases and improving the condition of those now in service.

THE spitting nuisance is inciting legal interference in New York. Recently fifty expectorators were convicted of the filthy practice in a single week. Thirty-two of the offenders were fined five dollars each, and the remaining eighteen were imprisoned for six hours or longer.

DOCTOR WILLIAM D. MIDDLETON, of Davenport, Iowa, died on the 6th instant, of blood poisoning, infection having been contracted while performing an operation for appendicitis. His assistant, Doctor Braunlich, was also poisoned, and suffered serious illness as a result. Doctor Middleton was dean of the medical department of the University of Iowa.

NINETEEN physicians of Mount Clemens, Michigan, have inaugurated a movement against "runners." Hotel corridors and other conspicuous places have been placarded with a list of the practicians who deplore the despicable custom that has obtained vogue in the Bath City, and the public is thereby warned to beware of a species of knaves who would jeopardize the lives of healthseekers by resorting to unscrupulous persuasion. The doctors specifically declare that they will not pay "runners" to secure patronage for them, and the sentiment of the citizens favors their position.

It is proposed to organize a section of Physiology and Experimental Medicine in the American Association for the Advancement of Science. The first meeting of the new section will be held in Washington, December 29 to Janury 5, 1902-3, with Doctor William H. Welch, the vicepresident in the chair.

The Philippine archipelago has been infested by an epidemic of cholera. From the appearance of the scourge to April 21, there have been eight hundred ninety cases and six hundred twenty-five deaths throughout the provinces. Four hundred eleven cases of the disease, which caused three hundred nineteen deaths, occurred in the city of Manilla.

Gothensberg, Sweden, has a population of 131,000 inhabitants. According to the city physician 1,700 suffer from tuberculosis, and 350 die annually as a result of the infection. During 1901 there were 454 deaths from this disease, pulmonary tuberculosis claiming 352 of the victims. In the Province of India the malady caused 12,055 deaths during the four years preceding 1901.

Doctor William W. Keen, of Philadelphia, was dignified at the recent thirty-first annual meeting of the German Surgical Association by election to honorary membership in that distinguished body. Later in the present year the doctor will visit Cairo, having been appointed to officiate as honorary president at the forthcoming Egyptian Medical Congress, which will hold its first meeting in that city in December.

The photoengraving of the Beaumont monument which appeared in the December (1901) number of **The Physician and Surgeon** has been reproduced in *The Philadelphia Medical Journal* and in *The Journal of the Association of Military Surgeons of the United States*. Both journals contain editorials relating to the illustration, and to the account of Doctor William Beaumont which was published in this journal over a year ago, the former journal complimenting the symposium in the following terms: * * * "The interesting story has often been published, but *never with more detail* than in the Beaumont Memorial number of **The Physician and Surgeon**." * * *

Although "all that glitters is not gold," evidence seeming to gainsay this truism was recently adduced by a phenomenon attributed to maternal impressions. The case in question is that of a Pennsylvania baby who is cutting teeth of gold instead of the ordinary dentine material. The mother when about three months pregnant, sought a dentist to have two front teeth filled with gold. It is now observed that the two corresponding teeth of the child "have all the appearances of being filled with gold." The father of the prodigy, who is a reputable physician, "cut into the bone and found that it is apparently of the yellow substance all the way through." The story emanates, from the daily press, but if it be substantiated the infant born with a silver spoon in his mouth will be relegated to the parity of sixteen to one.

The cure of cataract without operative procedure is announced from Bordeaux. An oculist named Cadel has experienced remarkable success treating the opacity by the application of baths of salicylate of soda. He claims to have maintained the transparency of the crystalline lens in numerous patients for several years, and is sanguine of the amenability of cataract to this therapeusis if treatment be inaugurated at an early stage.

The destruction of rats in Manilla is being prosecuted vigoorously. Doctor L. M. Maus, Commissioner of Public Health, reports that 33,772 members of the rodent family were captured by the official rat catchers and natives during the period dating from September, 1901, to February, 1902. An examination of 30,786 of these pestiferous animals at the laboratory of the health board disclosed the presence of the bubonic plague bacillus in two hundred twenty-nine. The bubonic disease in rate appears to be on the decline.

The Association of House Physicians of Harper Hospital was organized in Detroit on the 3d instant, the charter membership comprising twenty-one veteran and active house physicians of the above institution. The objects of the guild are to promote the interests of the hospital and cultivate sociability among members of its corps. The following gentlemen were elected officers for the ensuing year: President, Doctor H. O. Walker (first house physician of the hospital); first vicepresident, Doctor H. W. Longyear; second vicepresident, Doctor J. K. Gailey; third vicepresident, Doctor F. W. Robbins; secretary, Doctor T. R. MacClure; treasurer, Doctor R. T. Mason. The president, the vicepresidents, and the secretary constitute the executive committee. Doctors McLean, Longyear, Robbins, Lowrie, and MacClure were appointed to draft rules of order.

The Medical and Chirurgical Faculty of Maryland convened its one hundred and fourth annual meeting in Baltimore, April 22. At the preliminary meeting Doctor William Osler gave an illustrated lecture on the "Diagnosis of Smallpox." The regular meeting began with an address by the president, Doctor J. McPherson Scott, his subject being "Interstate Reciprocity in the Regulation of Medical Practice." A large number of papers were read and discussed, a banquet and a "smoker" were enjoyed, and the following officers were elected: President, Doctor William T. Howard; vicepresidents, Doctor Samuel T. Earle and Doctor Wilmer Brinton; secretary, Doctor J. Williams Lord; treasurer, Doctor Thomas A. Ashby; executive committee, Doctor J. McPherson Scott, Doctor William Osler, Doctor Samuel Theobald, and Doctor Aaron Friedenwald; trustee, Doctor John W. Chambers; State Board of Medical Examiners, Doctor J. McPherson Scott and Doctor Edwin J. Dirickson, for four years; Doctor Brice W. Goldsborough and Doctor Eugene Van Ness, for three years; Doctor W. W. Wylie and Doctor Franklin B. Smith, for two years; Doctor Henry B. Thomas and Doctor Chas. F. Davidson, for one-year.

THE examination of forty-five embalmers who were applicants for license to prepare for transportation bodies dead from dangerous communicable diseases was conducted by the State Board of Health, at Lansing, April 11, 1902. The occasion was the annual meeting of the board, but on account of a quorum not being present much other important business could not be transacted. The absentees included all practicians who are members of the board.

RECENT PUBLICATIONS.

REVIEWS.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES: VOLUME III.*

THIS volume contains relevant articles on subjects from chloralamid and chloroform to equilibrium. Among the more noteworthy are those on the following subjects: The administration of chloroform and other anesthetic agents, cholera infantum, chorea, chorion, choroid, circulation of the blood, cleft palate, climate, cocain, celom, cold, colon, color perception, concretions, conjunctiva, consanguinity, consumption, cornea, coughing, cranial nerves, cysts, dead, deaf mutes, death, dentition, dermatitis, diabetes, diarrhea, dietetics of the sick, diphtheria, digestion, disinfection, dislocations, ear and ear diseases, eclampsia infantum, electricity and electrotherapeutics, epilepsy. The extent and character of the work embraced in this volume may be appreciated from the fact of there being one hundred and forty contributors. Like the preceding two volumes this one is copiously illustrated by chromo-lithographs, half-tones and wood engravings.

*Edited by Albert H. Buck, M. D., of New York. William Wood & Company, New York, 1901.

DISEASES OF THE SKIN.*

THE merit and popularity of this work has been noticed in this journal before. The new (fourth) edition is better than the preceding, some new matter having been introduced without adding to the size of the book. It is essentially a general practitioner's text-book.

*By George Thomas Jackson, M. D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. New (fourth) edition, thoroughly revised. In one 12mo volume of 617 pages, with 82 engravings and 3 colored plates. Cloth, $2.75 net. Lea Brothers & Company, Philadelphia and New York, 1901.

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ORIGINAL ARTICLES.

ADDRESSES.

THE ORGANIZATION OF THE MEDICAL PROFESSION AS IT RELATES TO COUNTIES.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

AT the outset I wish to express to you my appreciation of the honor you conferred upon me when you elected me president of this association, and to thank you for the consideration you have always shown me during the time I have attempted to conduct the deliberations of this society.

With the completion of the exercises of this evening the Detroit Medical Society reaches the end of the second year of its existence. One year ago, at the last meeting of its first year, the retiring president was able to report a degree of prosperity in its affairs that was in every respect most satisfactory. Tonight I am able to make a like report.

During the year just closing, thirty-two new members have joined the society, a circumstance that brings the grand total of membership at the present time up to three hundred and sixty-seven.

During the same period every meeting provided for by the constitution has been held, and at none of these has there been a single failure on the part of the essayist or orator of the evening to appear and perform the duty that devolved upon him.

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*President's address before the DETROIT MEDICAL SOCIETY, May, 1902.

This circumstance must be considered a matter of good fortune, as well as of conscientious performance of duty, inasmuch as illnesses and other interfering agencies cannot be induced to spare practitioners in medicine any more than they do people much less deserving of such consideration.

Of the character of the work done little need be said. In accordance with a provision of the by-laws surgical and medical topics have been presented alternately, so far as has been practicable, and the standard of excellence attained in their work by those who have presented papers and cases, and by those who have participated in the discussions, has been uniformly of a high order.

Once a month for six of the nine months that constitute our year's work, a paper has been presented to the society by a physician of note not a resident of Detroit or Wayne county. The names of those who have favored us in this manner are, in the order of their appearance, as follows: DOCTOR FERDINAND C. VALENTINE, New York City; DOCTOR HARVEY R. GAYLORD, Buffalo; DOCTOR CHARLES THOMAS MARTIN, Cleveland; DOCTOR ARTHUR DEAN BEVAN, Chicago; DOCTOR REUBEN PETERSON, Ann Arbor; and DOCTOR MILES A. PORTER, Fort Wayne, Indiana.

To every one of these gentlemen every member of this society is under an obligation. For not only did they one and all, bring pleasure and profit to those who had the good fortune to hear and meet them, but also, at the same time, they advanced the interest of the society as a whole, by bringing it in touch with medicine and surgery as these subjects are viewed by the most advanced thinkers throughout a field extending far beyond the limits of our own local horizon.

During the year, however, the society has not confined its attention to affairs affecting itself alone. Matters pertaining to the welfare of the profession of the whole city, and state as well, have been considered by it. This was shown, for instance, by the appointment of a committee to co-operate with committees from the other local medical societies, in furnishing aid to the State Board of Registration in Medicine in its praiseworthy efforts to rid the profession of Michigan of such impostors as are practicing, or attempting to practice medicine, in opposition to the state law. It is gratifying to be able to state that this work of purification as a whole is going on in a most satisfactory manner, and that the Detroit Medical Society has assisted in bringing about this desirable result.

Besides having to do with its own affairs, and to some extent with those of the state, this society, along with others in this vicinity, is soon to have presented to it a question intimately connected with the welfare of the medical profession of the whole country, and one that is going to demand serious study and thought for its final disposition.

The question referred to occurs as an outgrowth from the plan of reorganization recently adopted by the American Medical Association. According to this scheme, as all are doubtless aware, a necessary qualification for membership in the national association is to be a preliminary and coexisting membership in a state medical society, and a necessary qualification for membership in a state society is to be an antedating and coexisting membership in a county society.

In other words it is proposed that the organized regular medical profession of America shall consist of three distinct bodies made up as follows: First, a county society to which shall be eligible "every reputable and legally registered physician who is practicing, or who will agree to practice, nonsectarian medicine." Second, a state society, to which shall be eligible only members of the various county organizations above mentioned, and third, a national society, to which shall be eligible only members of the various state associations formed in the manner indicated above.

The formation of the state and national associations under the scheme proposed would seem to be procedures certain to be characterized by plain sailing. The formation of the county societies under the same plan, however, cannot be said to be a matter destined to be marked in all cases by the above satisfactory feature. The reason for this is bound up in the fact that it is considered desirable that there should be in every county of the state a county medical society affiliated with the state organization, and that there should be but one such society in each county; provisions which in some cases at least will be carried out with difficulty. For in the more sparsely settled counties of the state there may be difficulty in finding a sufficient number of physicians to keep up such a society, while in the more populous ones, and especially those containing large cities, it may be equally difficult to get the members of the profession, interested as they may be in different local societies, to unite in one general organization.

With the former of these conditions, that is the one connected with the outlying counties, the Detroit Medical Society has of course nothing in particular to do, but with the latter the case is very different. For situated as our society is, in the midst of the most populous county in the state, with numerous other local medical societies sharing the same field, the difficulties connected with the formation of a county society in a populous center are forced upon us in the most pronounced manner possible.

How can a county society be formed in Wayne so as to meet the conditions of the plan proposed by the American Medical Association for the organization of the medical profession of America, and at the same time avoid to the greatest extent the difficulties already mentioned? This is the question referred to above as being so important to the Detroit Medical Society. To answer this question several plans have been suggested. Among them it has been proposed that one of the existing local societies be designated as the county organization, which by such action shall become one, which every physician in Wayne county must join if he wishes to become a member of the State Society. It has likewise been suggested that a new society entirely be formed for the purpose, on lines corresponding with those along which the existing local societies have been developed.

Neither of these schemes, however, seems to offer an entirely satisfactory solution of the problem. The most serious objection to them, it seems to me, is this: Neither of them will result in the formation of a society as large as the medical population of Wayne county is capable of sustaining, a result opposed to the foundation principle upon which the proposed organization of the medical profession rests. One reason for this view of the matter is this: Many physicians do not care to devote either time or money to more than one local society, and that many of such would cling to the society to which they, and possibly their fathers and grandfathers before them, had been attached to the exclusion of any other, even if they had to sacrifice the opportunity of becoming a member of the State Society in order to do so.

Another reason for this same view is this: The prosperity of any local society that did not confer upon its members the privilege of membership in the State Society would be continually lessened by either of the above plans. The reason for this is plain to be seen. Physicians joining a medical society; and particularly the younger ones, would be apt, unless there were strong reasons to the contrary, to join the one that led up to the State Society, a circumstance that would deprive the other societies of many of the recruits upon which they had been accustomed to count. The result of this would be that those physicians who had at heart the interests of one of these languishing societies, would look upon the former organization as an enemy in the medical camp to be denounced and opposed whenever opportunity presented itself. Other objections might be raised to the plans mentioned but these are considered sufficient for the purpose of illustration.

Whether any scheme can be devised that will meet all the conditions present and yet cause no friction or inconvenience in its application is a query difficult to answer. In any case the question is one of importance, and one to which we should all give earnest thought.

I have considered the matter as carefully as I can and have come to the conclusion that the best interests of the medical profession of Wayne county, in the case before us, can be best subserved by the creation of an organization having to some extent the features of a so-called paper society.

This society might be started by delegates from each of the existing local medical organizations (such delegate being chosen according to one fixed rule, such, for instance, as one delegate for each group of fifty members or fraction of this number, that any society may possess) meeting at a designated place and there completing an organization in accordance with the rules formulated by the State Society for the government of affiliated county organizations. As soon as this had been done this body of delegates would become the official county society of Wayne. Afterward, upon application, each of the local societies, after making its constitution and by-laws conform in essential particulars to that of the County Society, could become an integral part of the latter, just as the affiliated section of surgery or obstetrics is an integral part of the American Medical Association.

The completed scheme for the government of a society, formed along the lines just indicated, would of course, be a matter of deliberation and study, but whatever it finally came to be, one feature would have to be incorporated if anything like permanency of result was to be attained. The society represented by the delegates would have to have authority to execute certain of its own decrees, even if one of these involved the expulsion of a member of one of its branches, or other act now considered the sole prerogative of the organization affected by it.

In other words it would have to possess over some matters complete legislative, judicial and executive powers in order to preserve in the whole body a homogeneous whole. This principle, however, has been so thoroughly worked out in our country's national government that no difficulty should be experienced in applying it to the case in question.

Among the advantages to be gained by settling the question of a county society for Wayne after the manner indicated above are the following: First, every member of every affiliated society in the city would become eligible to the State Society without any increase in his society's dues. For the expenses of the central organization, although met by appropriations from its various branches, would be too small to affect in any way the usual dues of these branches themselves. Second, there would be no disturbance of the condition of affairs in the medical world of Wayne county as they at present exist, a condition that has been the result of an evolution extending over many years and one probably best adapted to the needs of the district in question. One benefit from noninterference in present conditions worthy of mention is the following: By keeping the medical bodies of Wayne county intact and energetic the number of medical meetings held each week, with their papers, discussions and other features, will tend to become greater instead of less, a situation favorable to great volume in medical work done, and to frequent opportunity for individual participation in medical society work. Third, the number of practitioners brought into the county organization would, by the scheme suggested, be the greatest possible. For the various branches would have influence in the central society in proportion to their numbers, a condition that would cause each of them to exert special effort to keep its membership as large as possible.

Other advantages which might be dilated upon at length are the good to be gained from a unification of the local profession and the benefit to be derived from the existence of a common head, which is in position to assemble in conclave the bulk of our medical population whenever there is need concerning an important subject of common and united action.

I do not claim the scheme here presented has only to be put in force to meet all the conditions involved in the formation of a county society for Wayne, but I do believe, if adopted, it will be the means of a start in the right direction and be easy of modification, as experience lets us know the manner in which this should be done. Under whatever formation, however, the medical forces of this county participate in the effort to unify our profession, I am sure no division will be found more enthusiastic than that represented by the Detroit Medical Society.

MEMOIRS.

POSTOPERATIVE INTESTINAL OBSTRUCTION.[*]

BY FRANK B. WALKER, PH. B., M. D., DETROIT, MICHIGAN.
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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE following case being typical of intestinal obstruction following laparotomy, I shall first briefly recite its principal features and afterward make some observations on the subject in general.

A boy was taken with pain in the right inguinal region first five years ago, at which time I ordered cold applications, quiet, and limited dietary. That attack duly subsided. He came under my care again March 15, 1902, at the age of eleven years. Forty-eight hours before, he was seized with abdominal pain during the night, but was in school the next half day. His temperature was normal the following morning, but by noon the symptoms had increased to the extent that DOCTOR H. MCCOLL, of Lapeer, advised surgical intervention.

Appendectomy was done at 12:30 A. M., March 16. The organ was gangrenous on both lateral surfaces and adherent to the anterior abdominal wall, to the left of McBurney's point. A seropurulent fluid exuded from the diseased tissues, which were not walled off from the other abdominal contents. A purse-string suture was applied to the stump and a gauze drain inserted into the wound.

On admission to Harper Hospital his pulse was 132 and temperature 101.4°. His temperature fell to normal by noon the following day and pulse to 96. Both continued normal from this time until the 21st, when temperature rose to 99.8° and pulse to 124.

A pro re nata order for one-twelfth grain of morphia sulphate was left with the nurse after the operation, and administered at 3:50 A. M., the 16th. By direction of the hospital interne the anodyne was repeated twice that day, given three times the next, twice the 18th, once the 19th, codia phosphate given on the night of the 20th, again early next morning and reinforced with morphia sulphate at 4:30 A. M., without much relief.

Cathartic drugs had been given with effect on the 15th and a rectal enema was administered with good results immediately before the operation. There was nausea on the 16th, vomiting twice on the 17th, three times on the 19th, and again once early on the morning of the 21st, some of the contents being large curds of milk, as the nurse expressed it, "like oysters." Forty-eight hours after the operation an enema of glycerin, sulphate of magnesium and water was given and followed an hour later by a larger simple enema, which was effectual. The passing of a rectal tube in the afternoon also afforded some relief. A seidlitz powder was administered in two doses the next morning. Enemata were repeated as on the day before with good effect. A turpentine enema at 11:00 P. M., was effectual for gas. Small doses of calomel were ordered for the next day, but the abdominal distention required the use of the rectal tube and also the turpentine enema. The turpentine enema was repeated the next morning but without relief. The distention had increased to the extent that coils of the small intestine could be outlined on the surface. The lower bowel including the colon had been thoroughly evacuated but there had developed in the ileocecal region some form of intestinal obstruction, which shut off communication with the small intestine. This opinion was concurred in by DOCTOR H. O. WALKER, who also agreed as to the necessity of more radical measures.

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[*] Read before the DETROIT MEDICAL SOCIETY.

Accordingly, but with some misgivings, I reopened the abdominal cavity about six days after the first operation, through the former incision slightly lengthened. The wound was in good condition. There was no peritonitis. The intestine was not adherent to the wound. The cecum and a small portion of the cecal end of the ileum were empty, but otherwise the small bowel was greatly distended with fluid and gaseous contents. A large quantity of these were removed through small incisions, a procedure well adapted to this case since the small intestines were pretty generally dark-colored and dotted in many places with almost black ecchymotic spots. Examination for points of obstruction revealed an adhesion of the ileum about two feet from the cecum, to the anterior abominal wall, at about the former location of the tip end of the appendix. The ileum, about three or four feet above the point just described, was adherent also to the abdominal wall higher up, and slight adhesions were broken up between the coils in two or three other places. It should be stated, however, that nowhere were the adhesions either strong or broad. One perforation was discovered in the lower end of the cecum and sutured. The wound was drained as before.

Following this second emergency procedure both temperature and pulse moderated and in forty-eight hours were 99.2° and 80 respectively. No anodynes were required but morphia sulphate was given two or three times to control restlessness. A voluntary fluid bowel movement was had three hours after the patient had been put to bed. From this time on gas was expelled from the bowels at frequent intervals. A well-formed stool was had on the evening of the fourth day and once or more times on each succeeding day. The patient left the hospital April 11, 1902, and is now fully recovered.

It has been variously estimated that from one to two per cent of deaths after laparotomy are due to intestinal obstruction. WARREN quotes KLOTZE as finding obstruction in 5.5 per cent of four hundred twenty-one laparotomies. This condition, the most serious complication following abdominal section, may come on immediately or soon after operation, or long afterward. That form which presents early is regarded as due to paralysis of the intestinal walls and is called *ileus paralyticus.* It is caused by traumatism or sepsis, affecting the nerve supply of the muscular coat. Great stress is laid by certain writers to the physiologic impermeability of the left subcostal angle of the colon on account of the great distention of the small intestine. That kind of postoperative obstruction which occurs later usually results from adhesion of one portion of intestine to another portion or to a fixed surface, such as the operation wound, abdominal wall or stump of a pedicle. Occasionally a loop of intestine becomes imprisoned under a band of tissue forming a bridge, kinking or bending of the bowel is produced and it becomes fixed and the condition gradually exaggerated. These adhesions usually occur in the small intestine, frequently near the junction of the small and large intestines, produce an acute condition and, according to WARREN, terminate fatally in about six days, unless relief is obtained.

The symptoms of postoperative obstruction are vomiting, pain, rapid pulse, and changed expression of countenance. Vomiting comes on several hours after the operation, not due to the anesthetic, and is persistent. At first undigested foods and fluids are expelled, then bilious matter, and later the vomiting may become stercoraceous. Pain may be localized or general and slight or severe. The temperature may not change much but the pulse becomes rapid. The patient assumes an anxious expression of countenance. The bowel below the point of obstruction may be evacuated but there is no passage of flatus and the tympany may increase to the extent of outlining the distended gut beneath the abdominal wall.

The prognosis in these cases is unfavorable, particularly if adhesions be present. **SENN** has stated, "Of the fourteen cases collected by me, only one recovered after secondary laparotomy."

The treatment of postoperative obstruction due to adhesions consists in promptly separating the adherent intestine and in remedying peritoneal defects so as to avoid further trouble. This brings up the subject of prophylaxis, which is moreover of supreme importance in every intraabdominal operation. The discussion of this phase of the subject might. be greatly extended but I can do no better than quote the most important prophylactic precautions enumerated by **SENN**:

"Quick, but not hasty, operating; withholding of irritating antiseptics from the abdominal cavity; gentle and as little handling of the abdominal contents as possible; careful hemostasis; covering of raw surfaces with peritoneum wherever this can be done; and an early resort to cathartics and high enemeta to maintain or restore intestinal peristalsis."

A SYMPOSIUM ON GYNECOLOGY.

A CASE OF INJURY TO THE URETER, AND A CASE OF INJURY TO THE BLADDER, EACH COMPLICATING LAPAROTOMY FOR REMOVAL OF BILATERAL PUS-TUBES.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

INJURIES to the bladder or ureter, during operation upon the female pelvic organs, while perhaps not common, are occasional complications with which the gynecologist has to deal. The close relationship between the genital and urinary apparatus under normal anatomic conditions renders the utmost caution necessary in pelvic surgical procedures, but when the natural difficulties are enhanced by pathologic encroachment upon available operating space, or by the distortion of the normal relationship due to inflammatory involvement and adhesions, the danger of accident is increased many fold. The number of cases of injury to the urinary apparatus reported in the literature is comparatively small, and the majority have occurred during panhysterectomy for malignant disease. The reason for this is evident. It is in panhysterectomy that the neighborhood of the ureter is approached and it is for malignant disease that this operation is most frequently attempted.

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*Read before the ANN ARBOR MEDICAL CLUB.

A recent French journal presents statistics drawn from observation of six hundred and thirty hysterectomies for carcinoma of the cervix or uterus. In this series there occurred:

Nineteen wounds of the bladder,
Ten wounds of a single ureter,
Three wounds of both bladder and a ureter,
One wound of both ureters.

Of twenty-two injuries to the bladder thirteen were cured by immediate suture. Of fifteen wounds of the ureter, but three were cured. From these figures it is seen that trauma of the ureter offers a less favorable prognosis than trauma of the bladder. The writer urges the importance of immediate repair in either case, and in event of failure advises secondary operation at the earliest possible moment.

In the two cases which I present the injuries to bladder and ureter occurred during operation for pelvic inflammatory conditions.

Case I.—The patient was a woman, aged forty-three, married nineteen years, two children, elder seventeen, younger eleven, who entered University Hospital November 22, 1901. She presented all the signs and symptoms of pelvic inflammatory disease of long standing. Profuse and long continued bleeding at her menstrual periods for several months had rendered the patient very weak and anemic. She had been in bed for some weeks prior to entering the hospital. A diagnosis of bilateral pus-tubes was made. The patient was operated upon the day following admittance. At the time of operating, the patient's temperature was 98.6°, and her pulse 116. The blood count showed 2,820,660 reds, 26,288 whites, and fifty per cent hemoglobin.

On opening the abdomen DOCTOR PETERSON found a large fluctuating mass springing from the left appendages, extending from the left pelvic wall to the median line and overlying the uterus which was carried downward and backward. A similar mass somewhat smaller was found on the right side. The uterus was atrophied and adherent to the abscess sacs and the rectum. The masses were firmly adherent to the pelvic walls, to the rectum and neighboring coils of intestines. The peritoneal cavity was walled off by gauze packs, the adhesions were broken up and the diseased appendages were removed according to the usual method. In loosening adhesions the pus sacs ruptured and pus was discharged into the pelvic cavity. After removing the diseased structures, the pelvis was wiped thoroughly with gauze and washed with saline solution. On account of the soiling of the peritoneum it was deemed advisable to open the posterior cul-de-sac for the purpose of securing drainage through the vagina. On account of firm adhesions between the uterus and rectum it was impossible to open in the median line without grave danger of wounding the bowel. Consequently an incision was made to the right and close to the cervix, an assistant placing a finger in the vagina as a guide. On cutting through the vaginal vault the uterine artery was divided. This was clamped as close to the uterus as possible. A second clamp was necessary before the bleeding was controlled. Ligatures were then applied. The tissue included in the second ligature invited inspection, and on tracing the ureter from above, it was found included in the ligated tissues. The ureter was promptly freed and inspected. No serious lesion could be discovered, and there was no leakage of urine. The pelvis was packed and the wound closed as usual.

The patient was profoundly shocked by the operation, but rallied promptly to subcutaneous injections of salt solution. Five quarts of hot normal salt solution were given during the first twenty-four hours, and the patient rallied well. The urinary symptoms resulting from the ureteral injury, due to crushing by the clamp, rather than the ligature, were the only unusual features of the convalescence. The first twenty-four hours the patient passed but seven ounces of urine and the next day but three ounces, notwithstanding the large amount of saline solution retained. On the third day urine was discovered on the vulval pads. At the end of the first week the amount of urine both by the urethra and by the vagina increased. From the tenth to the sixteenth day the amount by the vagina reached its maximum. The amount passed by the urethra could not be estimated accurately, on account of the amount lost at stool. From the seventeenth to the thirty-ninth day, the amount passed by the urethra steadily increased, and that by the vagina correspondingly diminished.

The patient left the hospital on the fifty-sixth day. The urine had almost ceased to pass from the vagina, and was hardly a source of annoyance. At no time was there any excoriation of the vagina, vulva or adjacent structures. The patient was seen two months after leaving the hospital, and stated that absolutely no urine had escaped from the vagina for some time.

In summing up the case I would emphasize the following points:

(1) The necessity at times for drainage when the peritoneum has been soiled by escape of pus in operations upon pus-tubes.

(2) The advisability of opening laterally when the uterus and rectum are so firmly adherent that separation of the structures would endanger the bowel.

(3) The possible decrease of space between cervix and ureter as a result of inflammatory adhesion and contractions.

(4) The importance of establishing the identity of the ureter in cases of doubt as to its position.

(5) The possibility of ureteral fistula following bruising of the ureter wall, though there may be no actual solution of continuity at the time.

(6) The recuperative power of the ureter after the occurrence of fistula.

Case II.—The patient, a married woman; was admitted to the University Hospital November 28, 1901. She gave a history similar to that in the case just cited, and presented similar signs and symptoms. The diagnosis was bilateral pus-tubes. In addition, the cervix had been lacerated, and was large and eroded. Six months before, the posterior cul-de-sac had been opened and tube drainage established. The tube was still in place when the patient was admitted. The patient was operated upon December 6. Dilatation and curettage were first performed. It was found to be impossible to reach the diseased appendages from below, so laparotomy was performed.

On opening the abdomen bilateral pus-tubes were found bound to adjacent structures by numerous firm adhesions. In separating these the pus cavities were ruptured and the pelvic peritoneum became soiled. After removing the pus-tubes, it was thought best to remove the uterus which was found to be enlarged and very friable. A supravaginal amputation was first made after securing the vessels and dissecting away anterior and posterior peritoneal flaps. On account of the possibility of future disease arising from the enlarged and eroded cervix and to secure more thorough vaginal drainage, the cervix was then removed. In stripping down the peritoneum from the anterior surface of the uterus very firm adhesions were encountered. In separating these by as gentle manipulation as possible, a rent an inch in length was made in the posterior bladder wall low down. The wound was immediately repaired, A layer of catgut sutures extending to but not through the mucosa was first passed. These were reinforced by a row of Lembert sutures and a layer of peritoneum was brought up over the whole. The bladder was filled with salt solution and no leakage was noted. The pelvis was packed with gauze, the wound closed and dressed as usual. A retention catheter was not employed.

For the first ten days the patient was catheterized at intervals of three or four hours to prevent distention of the bladder with urine. Saline solution was given freely for the first twenty-four hours. Seven quarts in all were retained during this time. At no time did urine escape from the vagina and at no time was the odor of urine detected upon the pads.

In summing up this case, I would emphasize:

(1) The thinning of the bladder wall as a result of inflammatory adhesions.

(2) The possibility of tears of the viscus in separating adhesions.

(3) The necessity for immediate repair and testing for leakage by injection of fluid into the bladder.

(4) The substitution of frequent catheterizing for the retention catheter.

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SUPPURATIVE PAROTITIS FOLLOWING REMOVAL OF PUS-TUBES.*

(FROM THE GYNECOLOGIC AND OBSTETRIC CLINIC OF THE UNIVERSITY OF MICHIGAN.)
BY WILLIAM H. MORLEY, PH. B., M. D., ANN ARBOR, MICHIGAN.
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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I HAVE selected the following case as the subject of my paper, since it is interesting both to the specialist and to the general practitioner. Moreover, suppurative parotitis following abdominal section is uncommon enough to call for the careful recording of every case where such a complication occurs.

Miss E. G., aged twenty-one, was admitted to the University Hospital October 9, 1901. The family history was practically negative. Menstruation appeared at the age of ten and has been regular both as to time and duration until two years ago, when the present affliction began. She has always been subject to constipation and frequent and burning micturition. She has had "malaria" nearly every summer for a number of years.

The present ailment began two years ago with painful menstruation and a dull, heavy pain in the pelvis. The patient has had a gradually increasing leucorrheal discharge, with a history of bladder disturbance together with severe pelvic inflammation following the taking of a heavy cold last June. Two years ago the increased leucorrheal discharge was treated with a purple solution. One week before admission to the hospital she had a severe attack of pain in the right iliac region, controlled only by opiates. She has been confined to the bed ever since on account of severe pain in the back and lower abdomen.

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* Read before the ANN ARBOR MEDICAL CLUB.

Examination at entrance showed the uterus slightly retroverted with the fundus carried to the left. The whole organ lay forward and under the pubes. The posterior cul-de-sac was occupied by a semifluctuating mass more pronounced in the right vaginal fornix. Satisfactory abdominal palpation was impossible owing to her extreme tenderness. The night following this examination, although no instruments had been used, the patient was taken with a severe chill followed by an elevation of temperature and pulse. The former rose to 103°. It was at once decided that surgical intervention was necessary, so an opening was made in the anterior cul-de-sac. Examination showed many firm adhesions binding the pelvic organs together in one solid mass. During the internal palpation of the pelvis a large quantity of thin milky fluid escaped through the opening in the anterior cul-de-sac. The probability of tuberculous peritonitis was at this time considered, so the wound was packed with gauze and allowed to drain. Three days later, since the temperature and pulse had not fallen as a result of the exploratory vaginal incision, a radical abdominal operation was decided upon, although the patient's pulse and temperature were high and her condition weak.

DOCTOR PETERSON found the uterus lying high up in the pelvis with a coil of the small intestine adherent to it. This adhesion was separated and bilateral pus-tubes with their corresponding ovaries, were removed. The appendix was club-shaped and adherent to the right tube, so it also was removed. While the left tube was being separated from its adhesions, it was ruptured and pus escaped into the pelvis. After a thorough irrigation of the abdominal cavity with salt solution and the passing of a gauze strip through the former opening into the anterior cul-de-sac, the abdominal wound was closed with through-and-through silkwormgut sutures. Although the patient was greatly shocked by the operation, she responded to the use of salines both subcutaneously and per rectum.

Four days later, the gauze strip was removed from the vagina. It had a very foul smelling odor due, in all probability, to a fecal fistula, as gas escaped from the vagina during its removal. Notwithstanding the drainage through the anterior cul-de-sac, the pulse and temperature still remained high. It was suspected that infection of the abdominal wound had taken place, but an examination of the incision showed neither pain nor tenderness on pressure. Induration of the wound could not be elicited on deep palpation. It was thought that infection of the abdominal wound might have occurred from septic matter traveling upward by way of the gauze strip whose lower end was contaminated by the discharges from the fecal fistula. Three days later a swelling was noticed below the angle of the right jaw. On palpation this swelling was found to be hard, firm and inelastic and to involve the right parotid gland. The mass below the right ear was very tender upon pressure and extended from the lobe of the ear well down the neck and from the angle of the jaw to behind the ear.

Nine days after the abdominal operation the abdominal wound was again inspected and some induration was found on both sides of the incision, so the wound was opened along the former line of the incision. About four ounces of thick, creamy, foul-swelling pus escaped from the reopened wound. The opening was thoroughly irrigated with normal salt solution and a rubber drainage tube inserted. Smears made of the discharge showed a short, thick bacillus and some of the fluid was sent to the bacteriologic laboratory for analysis. The colon bacillus was isolated.

The swelling under the right ear had been gradually increasing both in size and tenderness. The mass had, however, gradually lost its firm, inelastic consistency and was found on October 31, or fifteen days after the abdominal operation, to possess some fluctuation. Two days later it was decided to open the parotid tumor, as it had now reached the stage of complete fluctuation. Incision gave exit to about four ounces of thick, creamy pus. Bacteriologic examination of this pus showed the staphylococcus pyogenes aureus. From this time on the patient made an uneventful recovery and was discharged December 16, 1901, sixty-seven days after admission.

The interest in this case centers upon:

(1) The combination of purulent disease of the right appendages and of appendicitis.

(2) Infection of the abdominal wound by the gauze strip packed in the pelvis, whose lower end was contaminated by the discharge from the fecal fistula and by the colon bacillus working its way upward along the gauze strip.

(3) The connection between the parotid gland and suppurating foci in the pelvis and abdomen.

(4) The question whether pelvic drainage through the cul-de-sac does not furnish an avenue for entrance as well as for exit of virulent pyogenic organisms.

REPORT OF A CASE OF SLOUGHING INTRAUTERINE FIBROID.*

(FROM THE GYNECOLOGIC AND OBSTETRIC CLINIC OF THE UNIVERSITY OF MICHIGAN.)
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THE following case would seem to be of sufficient interest to warrant its being placed on record.

November 22, 1901, L. C., a married woman, aged 37, multipara, admitted to the gynecologic service of the University Hospital. The first labor was prolonged and instrumental, resulting in laceration of the cervix and rupture of the perineum. In September, 1899, after slight exertion she had a miscarriage at the fourth month. After the miscarriage her periods became more profuse and of longer duration. Local treatment did not improve her condition and she continued to flow from one to two weeks at a time. Patient had flowed excessively during the two months prior to admission. For this condition ergot was administered resulting in severe abdominal pain. Headache, anorexia and insomnia were prominent symptoms at this time. About a week before admission she had a severe chill and noticed a change in the color of the discharge which became brownish. Three days before admission it was discovered she had a tumor in the vagina and she was advised to come to the hospital.

Examination showed the patient to be emaciated, very pale, and weak. The skin was dry, the cheeks flushed and there was a very offensive odor to the breath. The temperature was 101°, the pulse 118. Protruding from the vagina was a stringy membranous looking slough. A mass filled the vagina to within an inch of the introitus. Anteriorly the dilated anterior cervical lip could be felt, and above it about an inch on the right side, and inside the cervix was situated the point of the attachment of the mass. On inserting a speculum a moist dark red mass with an exceedingly foul odor was exposed. Grasping the cervix with volsella forceps, about a pint basin of necrotic tissue was cut away with scissors without any sensation on the part of the patient. The dilated os was now exposed and was seen to be two inches across. The pathologist reported the material as consisting chiefly of organizing blood clot and necrotic tissue. It was so necrotic that it was impossible to tell whether it was uterine wall, myofibroma or fibrosarcoma. Deeper curetting was advised.

The next day the discharge and odor were less, but the temperature was somewhat higher. On the fourth day a blood examination showed 2,800,000 red blood cells, sixty-five per cent of hemoglobin and 6,621 white blood cells. The temperature was still elevated, ranging between 100° and 102°. The patient was given an anesthetic and a considerable amount of necrotic tissue was removed by the curet. The os was contracted so that it would admit only one finger. The sound passed into the uterus four inches whereas it had passed six inches at the first examination. The temperature remained between 99.4° and 101° for nine days when it began to rise steadily reaching 103.8° at 8 P. M., with the pulse at 120.

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*Read before the ANN ARBOR MEDICAL CLUB.

The next morning an intrauterine douche was given. Shortly after this the patient had a chill lasting twenty minutes. At 6 P. M. the temperature had risen to 105.4°. The patient was curetted again. The uterus was less nodular and smaller than before, but was still distinctly enlarged. The patient was quite weak before coming to the operating room and the pulse rose steadily under the anesthetic, reaching 150 at the close of the operation. While under the anesthetic a hard mass behind and to the right of the cervix was detected. The shock was considerable and cardiac stimulants were necessitated. To prevent any further loss of blood the uterus and vagina were packed with gauze and small doses of aseptic ergot given hypodermically.

The patient continued to have some elevation of temperature but for the first time since her admission began to have a good appetite and felt much better. Pain was complained of when the bowels moved. It was seen that the septic process had extended beyond the uterus, probably into the pelvic cellular tissue. Vaginal examination a week after the second operation showed the mass referred to above to be larger and softer. A second blood count showed 13,243 white blood cells. Long hot douches were given but the mass continued to increase in size. On the thirty-fourth day it was decided after careful examination to open the cul-de-sac, as the temperature continued to vary between 100° and 102°. This was done and about a pint of pus came away from the cellular tissue. On the fortieth day the temperature reached normal for the first time since admission. On the forty-third day the patient sat up and was discharged the forty-ninth day.

It was reported that she had obstruction of the bowels after returning home, but the symptoms probably can be explained by constipation induced by large doses of Blaud's pills she was taking for her anemia and morphia administered to relieve pain. Later advices report the patient in good health.

Résumé of Case.—The case was one of submucous fibroid which probably, by reason of the ergot administered, had its circulation cut off in the vascular capsule by the contractions of the uterine wall. It thus became a foreign body and was partially extruded into the vagina. The greater part was cut way. Later more was curetted away. There was extension of the septic process into the pelvic cellular tissue. This was not operated upon immediately, as there were no symptoms of peritoneal irritation and the patient's general condition was improving. Later, the pus was evacuated per vaginam and rapid convalescence followed.

Diagnosis.—There are three conditions that may be confounded with sloughing fibroid — abortion, inversion of the uterus, and carcinoma. In this case abortion and inversion had been suspected at different times before the patient came to the hospital.

Abortion.—The appearance of a sloughing submucous fibroid is often quite similar to a decomposed gestation sac. The menstrual history will be of value in differentiating the two conditions. The color of the vagina, the conditions of the breasts and a bimanual examination will generally be sufficient to establish the diagnosis.

Inversion of the Uterus. — It is not uncommon to mistake a sloughing uterine fibroid for an inversion of the uterus. The passage of a sound upward into the uterine cavity around the mass on all sides save the point of attachment of the tumor will establish the diagnosis of a mass projecting from the os. As a rule there is no foul odor to an inversion of the uterus as the endometrium has a good blood supply even in this position and no sloughing occurs.

Carcinoma.—Here again the sound is useful as the relation of the growth to the cervix is of the utmost value. The cervix is involved in carcinoma while in sloughing fibroid the cervix is distinct from the mass and remains intact. A microscopic examination if necessary renders certain the diagnosis of sloughing fibroid.

Natural History.—Owing to its position the variety of fibroid most commonly affected is the submucous. The majority of cases arise from mechanical injury to the capsule, which contains the blood-vessels, and thus often arise after labors, more especially instrumental, and other instrumental examination of the interior of the uterus. Ergot, or other drugs causing contraction of the uterus, may also interfere with the circulation of the tumor. Becoming thus a foreign body it is extruded into the uterine cavity which is the direction of least resistance. If the growth involves the entire wall, or the infection spreads by the lymphatics or the large blood sinuses of the capsule, it may spread to the peritoneal covering of the uterus. The septic process may travel through the tubes in these cases giving rise to general peritonitis.

Treatment.—In cases where the tumor is pedunculated and attached low down in the cervix the best plan is to remove the growth by severing its attachment with scissors or scalpel. But in the cases where the growth is sessile or occupies nearly all of one wall of the uterus it is no easy task to decide what plan of procedure to adopt. The choice lies between the removal piecemeal of the mass by curetting or cutting it away through the dilated os or a removal of the mass and uterus. The latter method is more radical but more dangerous. The peritoneal cavity is opened and exposed to infection by probably virulent organisms whether the hysterectomy be made by the abdominal or vaginal route. By the removal of the mass piecemeal the peritoneum is not opened hence cannot be directly contaminated but it may become involved by the infection spreading by the channels before mentioned and causing a general or localized septic process as a result of the delay in removal of all parts of the sloughing mass. Which method then is the least dangerous and most effective?

A study of the literature shows a very high mortality following either vaginal or abdominal hysterectomy for sloughing fibroid. This mortality is not due entirely to infection but is augmented largely by the shock of the operation, as these patients are generally much weakened by the septic absorption that has taken place. Not alone does the high mortality argue for the more conservative methods but they permit the conservation of the uterus, a very strong argument in women of a child-bearing age. A localized sepsis following the removal by cutting or curetting away of the mass is easily cared for as in the case reported.

OVARIOTOMY COMPLICATED BY INTRAPELVIC HEMORRHAGE AND HEMATOMA OF THE RIGHT BROAD LIGAMENT.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

SECONDARY hemorrhage after an abdominal operation is always an alarming complication. If death ensue, as in the case of puerperal infection, the burden of proof lies with the surgeon to show that it was unavoidable. Postoperative, abdominal, secondary hemorrhages are more infrequent since the *en masse* method of tying the pedicle has been abandoned. Yet the case I shall report will show that secondary hemorrhages may occur even when the pedicle is tied in sections.

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* Read before the ANN ARBOR MEDICAL CLUB.

Intraabdominal secondary hemorrhage, then, may be considered in these days a rarity. Such a hemorrhage with a concomitant hematoma of the broad ligament is of such rare occurrence as to warrant its being placed on record.

Miss L, B., age fifteen, was referred to the University Hospital by DOCTOR H. W. SCHMIDT, of Chelsea. There had been a painless abdominal enlargement for over a year. Otherwise the girl had been in good health.

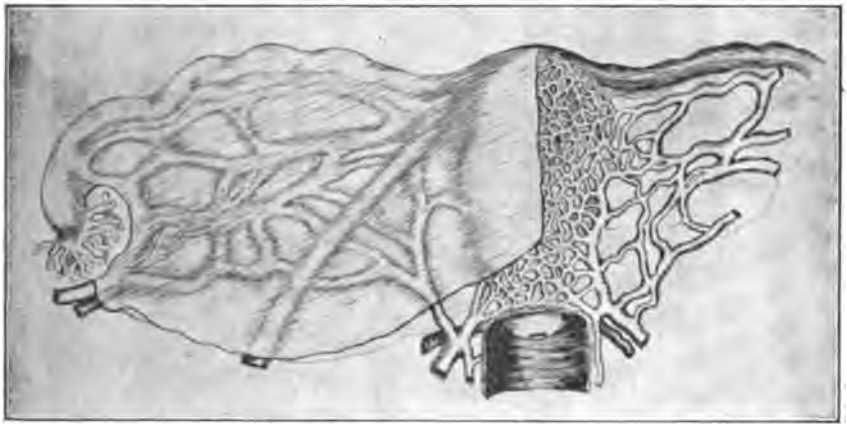

FIGURE I. Veins of Broad Ligament.

An examination January 5, 1902, showed a symmetrical swelling of the abdomen, with bulging at the flanks, protrusion of the umbilicus and other signs of an ovarian cyst. Just under the ribs on the right side distinct crepitus could be felt, increased by deep inspiration. Deep pressure over this region produced quite severe pain, January 14, 1902, a multilocular ovarian cyst containing five thousand cubic centimeters of amber-colored fluid was removed. The omentum was adherent to the cyst wall over the crepitant area previously described. It was ligated with catgut and loosened from the cyst. The pedicle was clamped, cut, and then tied in sections with an over-and-over catgut ligature. After securing the pedicle it was noticed that around one needle puncture was a venous enlargement as if a vein had been pierced, but as it grew no larger it was con-

considered of little importance. The adherent and enlarged appendix was removed.

The pulse at the completion of the operation was about 110 and strong. Within a few hours it rose to 160, although the tension was good. The possibility of secondary hemorrhage was considered and the patient carefully watched. Salt solution was given the patient freely, both by rectum and subcutaneously. Under its influence the pulse within a short time fell gradually to a little over 100. There was but little febrile reaction following the operation and the patient appeared to be doing well until the seventh day when the temperature rose to 101 and the patient complained of pain in the right iliac region. Examination showed rigidity of the right rectus and great tenderness over the region of the appendix. The supposition was that some infection about the stump of the removed appendix had resulted. Within a few days, however, the pain had moved downward and inward and the principal complaint of the patient was painful micturition. Vaginal examination showed a swelling in the right vaginal fornix, and it was concluded that the trouble lay not with the appendix, but with the stump of the ovarian pedicle. On the tenth day after the operation, the temperature having reached 103°, the patient was anesthetized and an incision made in the posterior cul-de-sac. About eight

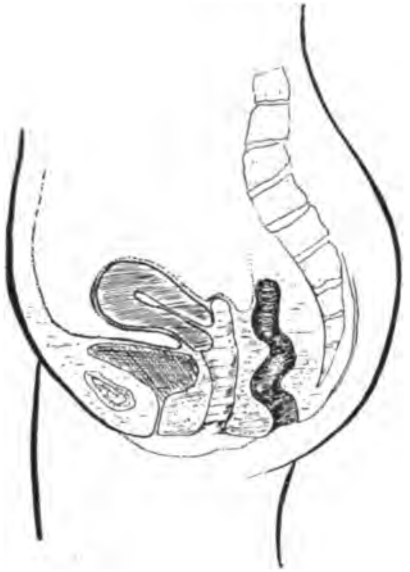

FIGURE II.
Normal Reflection of Peritoneum about Bladder and Uterus.

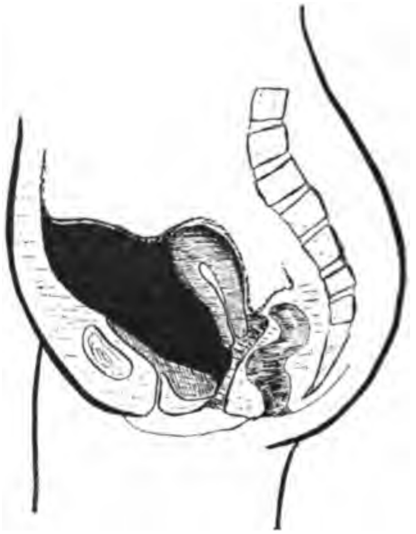

FIGURE III.
Lifting up of Peritoneum by Hemorrhage into Broad Ligament.

ounces of semiliquid clotted blood was evacuated, the cavity gently washed out and lightly packed. There was cessation of pain and a temporary fall of temperature after this operation. A week later, however, the temperature had risen to 102.5°. A mass was to be made out in the anterior cul-de-sac, reaching upward above the pubes about three or four inches. It was distinctly fluctuating and nonsensitive. A full bladder was ruled out by the passage of the catheter. Again the patient was anesthetized and an unsuccessful attempt made to reach the fluctuating mass through the cul-de-sac. An inch and a half incision was now made at the lower angle of the healed wound. The peritoneum was incised and between sixteen and twenty ounces of fetid pus and blood evacuated. The finger could be passed into a large cavity, bounded behind by the uterus and in front by the bladder. In other words the cavity was between the two layers of the broad ligament. Thorough irrigation and drainage was instituted. The subsequent convalescence has been uninterrupted.

We have to do in this case, evidently, with two hemorrhages, from two different sources and localized in two different places. One arose, in all probability, from an omental vessel. The blood gravitated to the bottom of the pelvis and was evacuated by the posterior cul-de-sac incision. The other hemorrhage was venous and took place between the layers of the broad ligament. It worked its way toward the uterus, at first giving rise to great pain. Later, as it pushed the peritoneum upward and the tumor appeared above the pubes, the pain disappeared.

Separately the hemorrhages possibly would not have given rise to the rather alarming postoperative symptoms. The diagnosis of hematoma of the right broad ligament was made prior to the opening of the cul-de-sac. When the blood was found apparently free in the pelvic cavity it was supposed to have made its way through the broad ligament. Under these conditions, however, it was difficult to explain the pain from the pressure symptoms. This was made clear after the appearance and evacuation of the hematoma.

According to DOCTOR MCMURRICH, the ordinary descriptions of the relations of the broad ligaments to the uterus are incorrect. Each ligament does not end at the uterus, but there is in reality but one ligament reaching from one side of the pelvis to the other, the uterus being slung in between its two layers. With this description in mind it is much easier to picture such a cavity as was opened into at the last operation.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, MAY 21, 1902.

THE PRESIDENT, DELOS L. PARKER, M. D., IN THE CHAIR.
REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR FRANK B. WALKER read a paper on "Postoperative Intestinal Obstruction." (See page 199.)

DOCTOR LONGYEAR: These adhesions causing complete stoppage of the bowel require prompt treatment. The doctor says that prophylaxis is really the most important in these operations. Very often one cannot cover these raw surfaces with peritoneum as SENN represents. In case the parts are dissected away there is a space on the wall of the abdomen that cannot be covered with peritoneum. In such cases I usually rub in aristol. I dry the raw surface with a gauze sponge and then take aristol on the finger and rub it in until it adheres thoroughly to the tissue. That will prevent the adhesions.

DOCTOR TIBBALS: In the comparatively small amount of abdominal surgery which has fallen to my lot I have never seen a case of postoperative obstruction of the bowel except one case of ileus. DOCTOR WALKER, in his paper, says that he rarely has found a postoperative obstruction in bad attacks. The form due to paralysis or peristalsis, which is called ileus, is fatal in most cases. It comes on early and if recognized early there is a prospect of relieving it. The whole development of abdominal surgery during the past four or five years has been along the lines of prophylaxis in these cases. I remember the first hysterectomy which I did. The amputation was made with an ecraseur, through ligatures which were put on for the purpose of controlling the hemorrhage, and that stem was left outside of the abdominal cavity to slough off. How different is the operation today. I remember hearing JOSEPH PRICE several years ago trying to explain to a Section in Gynecology how he treated that stem. He said he laid the peritoneum right down over it. Somebody inquired how, and he said, "Right down, as the old farmer does his barn door pants." I think that the fortunate outcome of DOCTOR WALKER'S case was due to the fact that he made an early diagnosis. If the operation had been delayed it is possible that he would have had a paralysis from which the patient would not have recovered, even if the obstruction due to adhesion had been relieved.

DOCTOR S. E. SANDERSON: Perhaps there is no field of surgery which illustrates more fully the way nature deals with patients than does that on the intestines. In opening up abdomens which had been opened several times before I have found that the loose peritoneum had an extremely fine way of covering places which had been left bare, and I notice that some of the surgeons are advocating in all kinds of intestinal work taking strips of peritoneum and covering up any bare places which may be left. To illustrate how much the intestine will stand without serious result I will cite a case. A young man received a stab in the abdominal wall near the median line. When I saw him fifteen minutes afterward he was holding in his hands a mass of bowels which had come out through the wound. The surface of the intestine was dry and marked by the underclothing, showing that it had been considerably scratched thereby. In one place the knife had entered and scratched the peritoneum. I was anticipating intestinal obstruction but fortunately it did not occur.

DOCTOR HIRSCHMAN: I was sitting in the City Physician's office one day when a colored man, very excited, rushed in and informed us that one of his companions had knifed another. Upon arriving upon the scene we found an old colored man who had received a razor cut in the stomach. The bowels were protruding and hanging over his clothes. DOCTOR H. O. WALKER attended him at Saint Mary's Hospital and found a perforation of the stomach, sewed it up and flushed out the abdominal cavity with saline solution and sewed it up, and in three weeks the man was walking the streets again. I happened to be in the operating room when DOCTOR WALKER operated for appendicitis, and also in the second operation for obstruction, and in taking into consideration the age of the patient, his weakness, the enormously distended small intestine, and the number of openings the doctor had to make to let out fluid feces, I think the recovery was marvelous.

DOCTOR DELOS PARKER: I was particularly interested in DOCTOR WALKER'S paper. I recall a case that I had six or seven years ago. After an ordinary operation for appendicitis, the symptoms of vomiting developed, with pain, restlessness, fever, weak pulse, and finally death, and consequently I was very much impressed with the doctor's statements, especially the reference he made to the importance of prophylaxis to prevent obstruction. If these unexpected developments of adhesions or obstructions in the belly can be guarded against a great achievement will be wrought. In the case to which I have reference, on postmortem the bowels were found somewhat contracted, like a sausage. There was no adhesion, apparently, that had connection with any other part of the abdominal wall or other intestines at all. If modern surgery, as DOCTOR WALKER presents, is getting rid of that kind of cases, it is progressing.

DOCTOR F. B. WALKER: It is quite remarkable and hard for us to understand, but it is a fact nevertheless that adhesions may be great in some cases and not cause any trouble, and may be very slight in other cases and cause a vast deal of trouble. The adhesions of the case I mentioned were not of any great account, yet were sufficient to cause strangulation. The bridge of which DOCTOR LONGYEAR spoke I incidentally mentioned. A bridge may be made of the pedicle in the way he described, or by the appendix itself, or by a bridge of tissue between fixed points. The prophylaxis in these cases is fortunately much better understood now than before the principle of asepsis came into vogue. The use of carbolic acid solutions, and later of bichlorid of mercury and other antiseptics was calculated to do just the damage that we did not want to do. Reports have been made by various surgeons who have employed the different kinds of antiseptic treatment and their cases compared in the different years, and the cases which they had during years when antiseptics were used more freely were followed with worse results. A number of writers have estimated that from one to two per cent of laparotomies are followed by this complication. It is not as rare as we think for. Some are willing to admit that some cases which are supposed to have died of sepsis really died of the obstruction rather than the sepsis. I can remember some cases which were supposed to have died perhaps from sepsis or intraabdominal hemorrhage in years passed which I do not doubt might have been cases of this sort. I think RICHARDSON calls attention to the fact that it is sometimes the obstruction which brings on the symptoms in appendicitis, rather than the appendicitis itself. The case I recited has caused some queries. The only point of adhesions seemed to be near where the tip end of the appendix had been. I relieved the appendix with but little trouble, and I did not turn the abdominal wall inside out to look at it, but I sponged it carefully. The intestine looked normal and I hardly had occasion to handle anything but the cecum and the appendix itself. I do not see how any prophylaxis could have foreseen and avoided the trouble that occurred in this case. I wish to correct the statement of DOCTOR HIRSCHMAN, in speaking of the second operation. He spoke as though there was considerable pus removed through the opening. It was rather the fecal matter. There was no pus.

ANN ARBOR MEDICAL CLUB.

STATED MEETING, FEBRUARY 19, 1902.

THE PRESIDENT, ROBERT C. BOURLAND, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

DISCUSSION OF PAPERS.

"A Symposium on Gynecology" was presented by DOCTORS BURR, MORLEY, PRAY, and PETERSON. (See page 202.)

DOCTOR SCHMIDT, of Chelsea: The case in which I am especially interested is the one that DOCTOR PETERSON has presented to you. The patient was brought to me a few days prior to the time the doctor saw her, by her sister who was anxious to know if she was pregnant or if she had a tumor. I found it at first difficult to make a diagnosis. The patient admitted that she had menstruated regularly until the last two or three menstrual periods, when the flow became scanty, although she felt better than she had for some time previous — in fact, she had always been ailing in previous years. Upon examination I discovered a general swelling of the abdomen and eliminated pregnancy without any doubt, upon which I told the girl's mother that the best thing would be an immediate operation, and referred her to the hospital. Since then I have carefully kept in touch with the case and have studied it with DOCTOR PETERSON. These cases are very interesting with reference to the age of the person. I think it is somewhat unusual to find an ovarian cyst in a person of this age. Among other possibilities tuberculosis must be considered.

DOCTOR LYNDS: I have been very much interested by these papers. The principal point that impressed me was in regard to the spontaneous recovery of the ureter after injury which DOCTOR BURR cited. It occurred to me that there was a chance of being mistaken about the recovery in such a case; for I well remember a case, in which the flow of urine from the vagina would stop for months at a time and then begin again. How to explain the cause I do not know except through retraction of the end of the ureter, thereby damming up the urine until there was sufficient force behind the ureter to force an opening again. I have not had an opportunity to post a case to prove that such a condition is possible. I remember operating for cancer of the uterus in a patient in whom the ureter was undoubtedly severed. She would go for six weeks or longer without passing any urine at all from the vagina. I distended the bladder repeatedly with all kinds of colored fluids, trying to force them through into the vagina, but I feel positive that it was the ureter. I certainly have been very much interested in the cases.

DOCTOR DARLING: I think the greatest importance attached to the reports of these cases is the fact that these gentlemen have had the courage to report some failures. It requires a great deal more courage, I think, to report failures or accidents than it does to tell of good cases, and tell how they all recovered. I wish to congratulate them for the courageous stand they have taken before the society this evening.

DOCTOR PETERSON: As DOCTOR DARLING has complimented us we will have to accept his compliments, but I would like to make a kind of amendment to his remarks and remind him that the patients all got well, although most of them only after considerable anxiety on the part of the attending surgeon. I think DOCTOR LYNDS' criticism a just one—that we are not sure that the patient in whom the ureter was injured had entirely recovered. But I have since operated in the town where she resides, and have learned that there has been no passage of urine through the vagina for some weeks. In many cases where the ureter is injured low down it does heal spontaneously. The interesting fact in this case was that I isolated the ureter and in spite of this put a ligature around it. In opening up laterally I took it to be the uterine artery, and then later found it to be the ureter and removed the ligature. The injury was done by the grasp of the forceps.

The cervix was removed in the second case reported by Doc-

TOR BURR, to avoid the possibility of subsequent malignant disease, and in doing this my finger slipped through the bladder without any thought on my part that I was using unusual force.

In DOCTOR PRAY'S case I was tempted to do the radical operation. But it seemed to me that it was a dangerous procedure, and I was afraid that if the peritoneal cavity was opened the patient would become septic and probably die.

In DOCTOR MORLEY'S case the complication was very interesting. I remember one case I had in my early operative career that nearly sent me to an asylum. This was my first abdominal hysterectomy, and I treated the stump by the old extraperitoneal method. The woman had, as many of those cases did, a large amount of sepsis. About three or four days after the operation she had a rise of temperature, and then soon began to see double, saw two doctors, two nurses, and was clearly mentally deranged. Then appeared the swelling in the region of the parotid, well down over the neck. I was convinced that there was pus and finally made an incision from the jaw down to the clavicle and tried my best to find it. I laid bare all the vessels of the neck and carried my incision as far as I could, but was unable to locate any collection and sewed up the incision with the expectation that the patient would die, but she promptly recovered. That is the only other case in my practice where I have seen the complication of parotitis follow a section.

The case that I reported was exceedingly interesting from the standpoint of diagnosis, not so much diagnosis prior to the original operation, but diagnosis of the complication. The question that DOCTOR SCHMIDT has raised, the possibility of the swelling being due to tubercular peritonitis, was considered, but a distinct cyst wall could be made out. I have no doubt that in quite a number of ovarian operations we have the two kinds of hemorrhages I have described. I think that often we have a bleeding from either omental vessels or from small vessels severed from the tumor, with considerable leakage down into the pelvis, which goes unobserved. But this is in such small amount that this blood, being aseptic, is absorbed. But in this case the hemorrhage was sufficient to produce the signs that I have detailed. I have seen in a number of cases a hematoma form when the pedicle is ligatured, but it was always of small size. I think that in securing these arteries individually, we should be very careful and not puncture any of the veins, if we would avoid the complication I have set forth in detail.

EXHIBITION OF PATIENTS.

DOCTOR DOCK: There is a gentleman here who has a very interesting physical condition. The man is a patient who has a musical heart murmur. He has a loud, whistling, systolic murmur that can be heard, on account of its loudness, all over the thorax, front and back, and up in the neck, along with another murmur—the sort of thing that one does not often hear. And I think it would be well worth the time and the small fee that he charges to listen to the murmur.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.
AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

The Treatment of Venereal Ulcers with Cold.—Brandweiner (*Wiener Klinische Wochenschrift*, Number XVII, 1902) speaks very highly of the treatment of venereal ulcers with cold. To this end he uses a spray of chlor-ethyl and meth-ethyl combined with air, allowing the freezing process to consume from three to five minutes. The ulcer is then dressed wtih iodoform and gauze. Consequent to the marked hyperemia brought on by the cold, a slough forms and separates in a few days, leaving a healthy granulating surface which heals very rapidly. D. S. GRIM.

Bronchial Breathing in Acute Pleurisy with Effusion. — Murray (*Lancet*, May 24, 1902), in an article on "Acute Pleurisy with Effusion," calls attention to the typical bronchial breathing which may be heard over an effusion, instead of the usual absence of breath sounds. In the diagnosis of the specific cause from the examination of the fluid, he says passive effusions are characterized by large endothelial cells. An effusion due to the pneumococcus or a streptococcus, contains mostly large polynuclear and mononuclear leucocytes; while in pleurisies of tuberculous origin lymphocytes with some red corpuscles preponderate. In paracentesis with apparent negative results, always examine the contents of the barrel of the needle, which may be clogged by viscid pus. D. S. GRIM.

The Origin of Carcinoma of Stomach from Chronic Round Ulcer of the Stomach.—Fluetterer (*Journal of the American Medical Association*, March 15, 1902) reports somewhat at length some very interesting cases of carcinoma following chronic round ulcer of the stomach. The author is of the opinion that this condition develops much more frequently than is generally supposed, and as an illustration of this he cites, the frequency with which he has met with the condition in a very limited postmorten practice extending over a few years, also that comparatively few cases are examined postmortem, and because of this the frequency of the condition is not recognized.

The author gives a resume of the literature from 1848 to date, and, together with his own six cases, has collected fifty-two, twenty-two of which occurred in males, nineteen in females, nine in sex not given, the ages ranging from twenty-four to seventy-five.

While the majority of the twenty-six authors cited describe the carcinomatous process as developing from the edges of the ulcers, none have considered the importance of this fact, or tried to explain it. The author considers this point of the highest importance in explaining the etiology of carcinoma. Some of his conclusions are as follows:

(1) If a carcinoma develops from a chronic round ulcer of the stomach, then this development occurs from those parts of the edges of the ulcer which are most exposed to mechanical irritation by the contents of the stomach.

(2) In the pyloric region, it is the lower pelvic margin of the ulcer which is most exposed to mechanical irritation and from which carcinoma develops. But other parts of the edges may be the ones involved when dilatations and adhesions have changed the position of the organ.

(3) Development of carcinoma from ulcers of the stomach in the pyloric region occurs with great frequency, while such a development occurs less often in other parts of the stomach.

(4) If what has been said under our third conclusion is correct then we must in all cases in which an ulcer of the stomach or its scar narrows the plyorus, recommend early gastroenterostomy, to prevent the development of carcinoma. If a gastroenterostomy has been made then the mechanical irritation of the ulcer in the pyloric region by food is reduced, and the severe friction necessary to produce a carcinoma will probably not occur.

(5) A patient suffering from the consequences of a stenosis of the pylorus particularly if this is caused by ulcers and scars, should, if a gastroenterostomy is not performed, be advised to eat slowly and little at a time and to be particularly careful about carbohydrates and especially hard crusts of bread; they should avoid crisply fried, or other coarse food, and they should, as much as possible, confine themselves to liquid or semiliquid foods. A good deal of fatty food should be recommended.

(6) From the fact that carcinoma does not develop from the large ulcers alone, but may be developed from the very smallest, the prognosis of ulcer of the stomach is bad. Our aim, therefore, should be to prevent the formation of ulcers, rather than to heal them after they have formed, and this may be done at least to a certain extent, by the energetic treatment of all cases of chlorosis and secondary anemia that come under our observation.

(7) After reviewing the literature we are now in a position to say that no one before us has laid stress on the fact that carcinoma of the stomach, which develops from an ulcer, originates from certain parts of their edges and that this while of importance in itself, will prove to be of great value when it is sufficiently considered in reference to the etiology of carcinoma in general. D. M. C.

Latent Pneumonia.—Littlejohn (*Edinburgh Medical Journal*, April, 1902). The author discusses this subject partly from the medicolegal standpoint, and calls the attention of physicians to the comparative frequency of this condition. He reports thirty-three cases in which (1) the disease was unsuspected during life; (2) death occurred suddenly, or followed within an hour or two after the appearance of serious illness; (3) the disease was well advanced, the lung in the majority of cases being in the state of grey hepatization.

From a study of the above series of cases, the author makes the following tentative propositions:

(1) Pneumonia may be completely latent during its whole course.

(2) The form of disease most likely to be latent is basal lobar pneumonia.

(3) Alcoholic apical pneumonia is rarely latent during its whole course.

(4) The disease may be latent even though the whole of one lung or a considerable portion of both lungs be involved.

(5) In latent pneumonia sudden death most commonly occurs during the stage of grey hepatization.

(6) The condition is practically confined to persons addicted to excessive alcoholic intemperance.

(7) Complete consolidation of the whole of one lung is not inconsistent with persons having continued to lead an active life up to the time of death.

(8) Latent pneumonia is most frequently a cause of sudden death during winter months.

(9) It is most common after the age of forty and in the male.

(10) The explanation of latency is found in the quantity of alcohol consumed after the onset of the disease: (a) in masking ordinary signs and symptoms by dulling sensibility; (b) by its stimulant effect, thus enabling a person to go about till he suddenly collapses and dies.

(11) In medicolegal cases discovery of latent pneumonia may satisfactorily explain the death of an individual and thus allay all suspicion connected with the case.

(12) On the other hand, the existence of pneumonia even in an advanced stage will not preclude the possibility of an individual having died of other causes, natural or violent, and of his having been at time of injury in a state of apparent good health.

J. R. A.

The Agglutination Test with Fraenkel's Bacillus. — Huber (*Centralblatt für Innere Medicin,* Number XVII, 1902), on "The Agglutination of the Pneumococcus," calls attention to the difficulty of making the agglutination test with the Fraenkel's bacillus, because of its lack of motility. However, in the serum of an individual immune to the Fraenkel bacillus, a culture at 37° centigrade is characterized by the fact that small lumps of the bacilli grow in the dependent part of the serum, while the supernatant part is clear, whereas in a serum from a nonimmunized individual the growth causes a cloudiness of the serum, no balling, and only single pairs with capsules are found in the culture. The serum is obtained by venapunction and centrifugation. The typical reaction begins on about the fifth day, weakening gradually from the time of the crisis and being very weak ten days after the crisis.

In serum from cases of articular rheumatism, anemia, ulcerative endocarditis, typhoid and sepsis the test is negative.

D. S. GRIM.

SURGERY.

By HENRY O. WALKER, M. D., Detroit, Michigan.
PROFESSOR OF SURGERY AND CLINICAL SURGERY IN THE DETROIT COLLEGE OF MEDICINE,
AND
CYRENUS GAVITT DARLING, M. D., Ann Arbor, Michigan.
LECTURER ON MINOR AND GENITOURINARY SURGERY AND DEMONSTRATOR OF SURGERY IN THE UNIVERSITY OF MICHIGAN.

Tuberculosis of the Testicle.—Horwitz (*Journal of the American Medical Association*) contributes an excellent paper on tuberculosis of the testicle, basing his conclusions on an analysis of ninety-six operations. He places tubercular infection next to gonorrheal in frequency in the diseases of the genitourinary organs.

The origin of the disease was in the epididymis in forty-eight cases, the testicle in twenty-seven cases, the prostate gland in fourteen cases, the vesicles or bladder in three cases, the lungs in one case and the hipjoint in one case. Clinical evidence points conclusively to heredity as a factor in causing the disease. It is most common between the ages of twenty and forty, rare in early youth or advanced age. The origin is generally supposed to be a slight injury to the epididymis creating a "locus minoris resistentiæ" where bacilli circulating in the blood may lodge. This has been proved experimentally on animals by infecting with tuberculosis and injuring the testicle, which procedure is nearly always followed by tuberculosis of the organ.

As an anatomical reason for its development it is stated that the spermatic artery bifurcates just before it enters the epididymis, and the vessels supplying the latter with blood are smaller and more tortuous than those of the testicle, hence bacilli in the blood are apt to lodge at this point. Infection by the lymph channels seems hardly possible, the vessels all being directed toward the receptaculum chyli.

The disease is probably not contagious by intercourse, though Verneuil believes that it may be so contracted. Primary tuberculosis of the epididymis may result in general infection. He has never found a case associated with Pott's disease.

It may follow specific urethritis and in some instances would seem to announce its presence by a peculiar mild discharge from the prostate gland or a posterior urethral ulcer.

A tubercular lesion of the urethral mucous membrane may cause exacerbations of a chronic gonorrhea. The disease is hard to distinguish from orchitis when there is mixed infection. When the testicle is involved it may be difficult to distinguish from syphilitic orchitis or malignant disease. The tuberculin test may help to decide the question. Hydrocele is not so common a complication as some have believed, as it was present in but sixteen cases. Bacilli are rarely found in the fluid.

The treatment advised is radical operation when the condition of the patient will warrant it. Epididymectomy should be performed when the epididymis alone is involved, following the vas well up when it is diseased. In five cases it was followed into the pelvis to the seminal vesicles. The microscope shows that an enlarged and thickened vas does not always mean tubercular disease.

Resection of the seminal vesicles is classified as a formidable operation with unsatisfactory results, as most of the cases show secondary development of the disease. The results following epididymectomy are not gratifying so far as cures are concerned. Of nineteen patients he was able to trace, only eleven are alive, the time since the operation varying from seven months to fourteen years.

Epididymectomy was not followed by atrophy of the testicle or diminution of sexual power, neither did castration have the "demoralizing effect which is sometimes to be apprehended." Injections of iodoform emulsion or solutions of zinc sulphate did not give satisfaction.

There is no safety in a latent tuberculosis; all foci should be removed when possible.

Proper hygiene and suitable climate will do much to prolong the life of the patient after operation. C. G. D.

GYNECOLOGY.

BY REUBEN PETERSON, A. B., M. D., ANN ARBOR, MICHIGAN.
PROFESSOR OF GYNECOLOGY AND OBSTETRICS IN THE UNIVERSITY OF MICHIGAN.

Retrodisplacements of the Uterus in Young Girls and Unmarried Women.—Hayd (*American Journal of Obstetrics*, November, 1901.) arrived at the following deductions in his article with the above title:

(1) A plea for the more careful examination of young women by competent and skilled men who can undertake any operative measures that are necessary.

(2) Every case of retrodisplaced uterus in the young or unmarried or married woman may not require any treatment.

(3) If they produce a definite symtomatology, the Alexander operation should be employed, if the case be an operable one; that is, if the uterus is freely movable and the tubes and ovaries are healthy.

(4) Retroversions and retroflexions in the young and unmarried should never be treated by pessaries, but by the Alexander operation. Tampons and pessaries have their place in retrodisplacements in married women or women who have been pregnant, but they accomplish practically nothing in the displacements of young women. [This is too strong a statement. Certain unmarried patients either cannot or will not be subjected to operative procedures. In these cases, the uterus can be replaced under an anesthetic and after the fitting of a proper pessary, at least symptomatic relief will follow.—R. P.]

(5) The Alexander operation is safe and without mortality incident to the operation, and no harm can come from its proper

performance; even if the uterus subsequently falls the patient is no worse off than she was previous to the operation.

(6) It does not in any way interfere with pregnancy and future child-bearing, but on the contrary materially helps the possibility of pregnancy.

(7) No pain or distress follows the operation if the case operated upon be properly selected; and if pain and suffering result, there existed at the time of the operation latent tubal and ovarian trouble, which sooner or later perhaps would have required a radical operation. If it becomes necessary to do a celiotomy on a person who previously had an Alexander operation, the uterus will be found in its normal anteflexed position, which is necessary in every case, whether the tubes and ovaries are removed or not, to insure good health and freedom from future suffering.

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
PROFESSOR OF PEDIATRICS IN THE MICHIGAN COLLEGE OF MEDICINE AND SURGERY.

Educational Methods and Nervous Exhaustion.—Wilcox (*Homeopathic Journal of Pediatrics*, March, 1902) calls attention to the injurious effects of advanced educational methods, and especially the Regents' examination upon nervous children in the public schools of New York state. He says many parents notice in those children preparing for an approaching examination, symptoms of nervous apprehensive excitement, irritability, sleeplessness or loss of appetite; and frequently after an examination, observe physical exhaustion, nervous depression or exhilaration and sometimes collapse. These examinations so exhaust the reserve force in these nervous children that the resistance to disease becomes lessened, leaving the child subject to almost any malady that is prevalent.

These examinations occurring in the school life of young sensitive children are the main cause of nervous exhaustion exhibited in later college life; the final collapse being merely the climax of the strain begun in earlier school life. He says no system of examination should be tolerated which in its operation lowers the physical stamina of the developing child, no matter how useful for the advancement of the child's education.

The author concludes by saying, athletics are a great step forward in college life, but much remains to be corrected in the physical school life of the young, and he is convinced the state is in error in subjecting its younger pupils to a semi-annual ordeal of questionable benefit mentally and which to his mind is one of the greatest factors in the production of nervous irritation and physical ailments to which the school child is subject.

Summer Diarrhea.—Kerley reports five hundred and fifty-five cases (*Archives of Pediatrics*, August, 1901) and one hundred and twenty-seven (*New York Medical Journal*, April, 1902) making a total of six hundred and eighty-two with twenty-two deaths.

He says that the large infant mortality of summer diarrhea is preventable. The illness may be prevented somewhat by good milk, properly cared for and properly given at definite intervals. A large mortality is to be prevented by discarding all forms of milk, after the first symptoms of gastrointestinal derangement, regardless of the severity, duration of the illness, or of the character of the stools, stopping the milk at once in order to make the intestinal contents as poor a culture field as possible. He looks upon ever case of summer diarrhea as dangerous and requiring vigorous treatment whether mild or severe, for a mild attack with milk-feeding continued will soon become a virulent infection. No milk should be allowed until the stools approximate the normal, and as a substitute a cereal water, as a rule barley water, is the'most useful, with an addition for nourishment and variation, of beef, mutton, or chicken broth, in the proportion of four or five ounces of barley water to one or two of broth. This is given at two-hour intervals, and boiled water ad libitum at any time. The child should be kept in a well-ventilated room and if fever be present a cold water sponge bath should be given several times a day. Milk feeding is resumed by adding the fluid to the cereal water in small quantities, gradually increasing the amount. He relies upon four drugs for the treatment, namely, calomel, castor oil, bismuth, and opium. He uses irrigation, about once in twelve hours, of warm normal salt solution if there is anything in the intestines to be removed by its use. He lays great stress upon the education of the mother as regards cleanliness and care of food. In order to prevent summer diarrhea the child should be fed properly all the year round, and at the first sign of diarrhea the mother should be instructed to discontinue the use of milk, to begin employing cereal water and give a dose of castor oil. He advocates municipalities establishing milk laboratories and stations where sterilized milk, cereal gruels and animal broths could be obtained every month of the year at small cost. with ice stations in connection. In other words, good food for the well, and mothers instructed what to do at the first sign of gastrointestinal disorder, would greatly reduce the death rate of infants.

OPHTHALMOLOGY.

By WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
CLINICAL ASSISTANT IN OPHTHALMOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

Operative Interference in Corneal Complications of Gonorrheal Ophthalmia: Twelve Cases.—Parker (*Ophthalmic Record*, April, 1902) gives a report of twelve cases of gonorrheal ophthalmia operated upon in the Massachusetts Charitable Eye and Ear Infirmary, from which he notes the following observations:

It will be seen that in these cases only one resulted in loss of the eye; in the other eleven the corneae cleared rapidly after operation, and the ultimate result was a useful eye in each case.

In no case was there a secondary infection leading to panophthalmitis. In two cases, however, there was a hypopyon which soon cleared up. The Saemisch operation is not only justifiable, but is indicated, when the ulceration is extending rapidly and tending toward perforation; as is often manifested by a bulging of the membrane of Descemet. In most instances the operation should be performed early. This is especially advisable in adults, since these cases go so rapidly to pieces when once they are fairly started. The operation, as Saemisch advises, should be from clear cornea to clear cornea, through the center of the ulcerated area. As in the Saemisch operation for other ulcerative conditions, it is necessary to keep the wound open and draining well. It may be necessary to open the wound daily, and in some cases twice a day. This can usually be accomplished with a blunt probe or spatula.

After operation the discharge and edema have rapidly subsided and the patient has almost at once been made more comfortable.

Admitting that some cases of spontaneous rupture of cornea at site of ulcer stops all further progress of the disease and the eye goes on to recovery as in cases operated upon, it seems justifiable to forestall nature and operate early with the chance of saving more clear cornea and therefore a more useful eye.

Most cases of ulceration start at or near the periphery rather than centrally, and if we operate early the chance of saving clear cornea over the pupillary area is greatly increased.

When possible a Graefe knife is the best instrument to use, but when the ulceration is situated laterly a keratome or a bent broad needle will be useful. The bent broad needle is sometimes more easily handled than Graefe knife in the presence of much chemosis.

Looking over four years' records, I selected twelve cases as nearly parallel as possible, which were unoperated, and the ultimate results, certainly justify operation, even in the midst of the most purulent discharge, when, of course, these ulcerations are most liable to occur.

Cases of deep ulceration of the cornea, especially in adults, almost invariably resulted in total loss of vision, and in most cases large bulging staphylomata.

NEUROLOGY.

By AUGUSTUS WRIGHT IVES, M. D., Detroit, Michigan.

PROFESSOR OF PHYSIOLOGY AND ASSISTANT IN NEUROLOGY AND PSYCHOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

Sleep and Insomnia.—Skelton (*Clinical Review*, June, 1902) says two principles seem to govern in regard to the amount of sleep required. First, structural and functional perfection. The greater this perfection, the less sleep required, because fatigue is not so easily induced. Second, the greater the physiologic activity, the greater the fatigue, hence the more sleep required.

The causes of insomnia he groups under the following heads: (1) Interferences with the normal withdrawal of stiumli. Irritation of the sensory nerves. (2) Irritation from visceral organs. (3) Overactivity, irritable exhaustion of the cerebral neurons. (4) Intoxication of the cerebral neurons. (5) Hereditary unbalanced and irritable neurons.

Insomnia is never a disease. It is never a cause. It is a symptom.

The treatment resolves itself into the management of the clinical condition. Its treatment as a symptom may occasionally demand attention, but it is always to be recollected that we treat it symptomatically because of our ignorance or inability. The management of a case of insomnia is outlined as follows: (1) The induction of muscle fatigue by walks in open air or by massage. (2) The clearing away of intestinal and hepatic accumulations. (3) The giving of the proper amount of easily digested food. (4) The use of a hot bath. (5) Proper sleeping rooms, where seclusion (and darkness) can be had. The victim of insomnia should sleep alone.

Insanity. — Bondurant (*Mobile Medical and Surgical Journal*, April, 1902), defines clearly the difference between idiocy, imbecility and paranoia.

In idiocy there is almost total absence of mental development due to inherited cerebral defects, or to causes acting upon the infant prior to the dawn of intelligence.

Imbeciles show a less extreme degree of mental defect and cover a considerable range of variation in intelligence. The dividing line between idiocy and imbecility, he says, is not sharply drawn, though it is usual to regard as an imbecile a feeble-minded person who is teachable and who is able to acquire the power of structural speech. The imbeciles of higher grade are only a shade less intelligent than the simple dullards and weak-minded individuals who are not regarded as pathologically defective. Many imbeciles develop special aptitude in certain lines they show remarkable memory for certain classes of impressions, unusual quickness and facility in simpler forms of mathematical problems, marked development of the musical instinct, a certain quickness and low wit, great powers of mimicry, et cetera.

The paranoiac is in infancy nervous, liable to convulsive attacks and infantile disorders. In childhood he is recognized as somewhat odd and peculiar, but is usually by no means lacking in intelligence. He is quick, acquisitive, shows marked talent in inventive, musical, and artistic lines and in some, not often all, of his studies. As the individual grows all his eccentricities and mental abnormalities become more pronounced and fixed. He comes to erroneous conclusions quickly, which he retains in the face of convincing evidence of their falsity. These false conclusions ultimately dominate his entire psychic organization, rendering him unsuccessful in business. He thus comes to feel himself ill-used and persecuted, and becomes morose and more or less melancholy. One step further and he develops distinct persecutory delusions, generally fixing upon one person or group of persons as the cause of all his troubles. He then not infrequently attempts to redress his grievances in some way, by murder, assassination or other violence.

THERAPEUTICS.

By DELOS LEONARD PARKER, Ph. B., M. D., Detroit, Michigan.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

Quinin Rash, with Report of a Case.—H. C. Wood, Jr., (*The Therapeutic Gazette*, January 15, 1902) reports the following case, which occurred in the service of Professor Riesman, at the Polyclinic College for Post-graduates:

Mrs. A. C., aged thirty-five, occupation laundress, was brought to the clinic with the following history: She had taken two days previously, as a tonic, the following prescription: tincture nux vomica, one ounce; tincture cinchona compound, enough to make eight ounces; two teaspoonfuls three times a day. Within a short time after taking the first dose she experienced stinging sensations along the forearm. A short time after this these areas became red. When seen the eruption presented the following appearance: a number of spots equally distributed over the extensor and flexor surfaces of the forearm, regular in outline, almost perfectly circular, from two to five centimeters in diameter, deep-red in the center, shading slightly towards the periphery, and surrounded by a slight macular rash. The temperature of the skin in the immediate neighborhood was distinctly elevated to the touch. There was at first, according to the patient's description, some indurations around the spots, but this had mostly disappeared when patient was seen. Some of the spots had already faded and were copper-colored, in contrast to the bright red of those in active inflammation. There was slight itching. Temperature 99.8°; pulse 88; no marked constitutional disturbances, no involvement of the mucous membranes. A placebo was ordered, and four days later the patient was seen again. The spots had faded to a marked degree, some of them actively disquamating. There had been since her visit some pain on using the left arm. Unfortunately the patient did not return again to the clinic, and we are unable to give the exact time of her recovery, but at the last visit she was well on the road toward it. Patient said she had had a vesicular eruption five years before, following the use of quinin for malaria.

The amount of quinine the patient took with each dese in the case reported was only a half grain.

Wood reviews the subject of idiosyncrasy respecting quinin and quotes from Bergeron and Proust, who have made special study of this subject. He says the eruption which occurs among workmen engaged in quinin manufacture is not due to local irritation but to the absorption of the drug. He says only a small proportion of workmen are affected and with these the eruption takes the character of an eczema rather than that of an erythema, the usual form resulting from internal administration. Workmen once affected are apt to have other attacks if they continue to handle the drug.

Points of interest to the general practitioner on diagnosis, cause, and treatment.

"Quinine eruptions may be conveniently divided into the following groups: The scarlatiniform, the urticarial, the bullous, the purpural, the rubeoloid, and the erythematous. Outside of these groups there have been reported isolated cases which cannot be placed in any of these classes."

Any portion of the body may become affected by the rash. Out of sixty cases reported eighteen per cent had the mucous membrane affected and twenty-three per cent were characterized by desquamation. As a rule the eruption appeared within one day after the drug had been taken. In severity the eruption may vary from a slight redness to the degree shown in the following case:

"The whole horny covering of the palms depended in the shape of half-filled bags of fluid; the skin of the fingers being raised from the tip to the last articulation." On the soles of the feet the bullæ had coalesced and were even larger. Exudation began and continued for some days; recovery was complete in five to six weeks, although much delayed by the exquisite tenderness of the denuded surfaces of the hands and feet. The mucous membranes were never affected."

The size of the dose has little bearing on the intensity or probability of the eruption. This shows that idiosyncrasy is the chief cause of the complication.

Treatment after the withdrawal of the drug is purely symptomatic. "Mildly astringent applications, such as dilute acetic acid or zinc oxide are indicated. The use of saline laxatives to open the bowels, and sedatives in those cases wherein there is accompaning excitement should be employed."

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
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More Public Playgrounds.—On May 7, a child four years old was cut in two by a trolley car in Williamsburg, while playing "tag" in the street.—(*The New York Medical Journal*, May 17, 1902). Such a calamity is of course deplorable, and the bereaved parents need all the sympathy they can have; but the fact must not be overlooked that if it is true, as stated, that the child, particularly a child of such tender years, "had been given permission to go to the street to play," such a catastrophy was distinctly courted. The question is simply this: Children cannot play in streets in which there is much traffic, and especially where the trolleys run, without a certain number of young lives being sacrificed. Three possibilities are open: The traffic must be stopped that the children may play; the children must cease to play in the principal thoroughfares that the traffic may continue; or, parents individually must decide whether their own convenience and the advantage accruing to their children from play are of such importance as to justify taking the chances to life and limb that the latter run in playing in the streets. There is yet another alternative, the acquisition by the city of frequent small plots for public playgrounds, the provision of which would enable the authorities to enforce a rule keeping young children, when unattended, off the streets altogether. Of course such a procedure would be costly to begin with; but the nation would be benefitted by many promising young lives saved, and by the increased healthiness and physique of the rising generation in the more densely populated and poorer portions of the city.

Tame Pigeons Carry Scarlet Fever Germs.—The epidemic of scarlet fever that has been prevalent in Cincinnati and other Ohioan towns (*Municipal Journal and Engineer*, June, 1902) has caused the health authorities of the city to believe that much of the contagion has been spread by tame pigeons and doves which carry the germs from place to place. The authorities were led to this conclusion from the fact that the disease of scarlet fever spread from one house that had been strictly quarantined. No one seemed to be able to account for the spread of the disease until it was noticed that there was a large pigeon loft on the house in which was kept a number of tame pigeons. As the pigeons themselves were not quarantined, but flew all about the neighborhood, it seemed most probable that they were the cause of spreading the contagion.

PATHOLOGY.

By ALDRED SCOTT WARTHIN, Ph. D., M. D., Ann Arbor, Michigan.
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Second Annual Report of the Cancer Committee of the Harvard Medical School. — (*The Journal of Medical Research*, April, 1902). The confident assertions made last year by Park and Gaylord, of Buffalo, as to the parasitic nature of cancer have not been strengthened by further evidence from these investigators. On the other hand there seems to be a growing reaction among the majority of pathologists against the parasitic theory, and all of the recent work along this line has to do with the strengthening of the negative side of the question. The report of the Harvard committee is one of the most important summaries of our present knowledge of the question as based upon new original work by the investigators appointed by the committee. It consists of six articles and a brief summary, as follows:

(1) *Coccidium Infection of the Rabbit's Liver, E. E. Tyzzer.*—The life cycle of the coccidium oviforme is carefully traced out and it is shown that in only one stage does the sporozoon resemble the cell-inclusion of cancer, and that this stage presents a definite and constant morphology. The immediate effects of the parasite are degeneration and necrosis of the epithelium of the bile ducts. Secondary to this there follows a proliferation of the connective tissue and epithelium, the lesion being ultimately repaired by the walling off of the process by connective tissue and cicatrization. The lesion is of the nature of a chronic inflammation and bears no analogy to carcinoma. The tissues react to the irritation caused by the presence of the parasite in the bile ducts. When this irritation is removed healing takes place. No metastases are formed, nor is it possible from the nature of the lesion for them to take place.

(2) *Molloscum Contagiosum. C. J. White and W. H. Robey, Jr.*—An introductory review of the literature is first given with an epitome showing the attitude of various investigators toward the questions of etiology and nature of the affection. Then follows a report of the study of the tumor and the tissues about the tumor proper. The results of this study vary in many important particulars from the views held by other observers. No bodies were seen which could by any possibility be called grecarins. No division of a nucleous was seen, and the writers believe that the nucleus and nucleoi play no part whatever in the subsequent changes. No membrane was ever found walling off the nucleus and forming doubly contoured bodies. The writers conclude that the so-called molluscum bodies are simply keratin, identical with the horny layer except in the shape of the individual cells. The process is to be regarded as an extraordinary metamorphosis of rete cells into normal keratin. The bacteriological examination showed only pure culture of the staphylococcus albus.

(3) *Culture Experiments with Malignant Tumors, O. Richardson.*—Twenty-four malignant tumors were examined culturally upon a number of media and observed over varying periods of time. Regular macroscopical and microscopical examinations were made and in the case of many subcultures. The results of these investigations showed that nothing could be cultivated from the tissues and fluids of malignant new growths which can be regarded as a specific infecting organism.

(4) *Four Pathogenic Torulae (Blastomycetes), J. D. Weis.*—The culture characteristics of torulae neoformans, torulae Sanfelice, torulae Plimmer, and torulae Klein were studied by Weis. His work shows that all four of these organisms have almost the same characteristics and show but few variations one from another. They do not ferment any of the sugars, do not form spores, and under none of the conditions were mycelia seen. From these facts Weis concludes that they should be classed as torulae and not as saccharomycetes.

(5) *The Relation of Blastomycetes to Cancer, Nichols.* — From the observations reported in the literature and from his own investigations Nichols comes to the following conclusion: Certain

blastomycetes are pathogenic for animal and human tissues. The lesions produced by spontaneous infection with blastomycetes are inflammatory in nature and are not in the least analogous to cancers. Spontaneous blastomycosis in human tissues is very rare. The lesions are also inflammatory in character, but at times a proliferation of the epithelium does occcur, this, however, is not due to the direct action of the blastomycetes but is secondary to the chronic inflammation of the underlying corium. This epithelial proliferation is not analogous to carcimatous epithelial proliferation since no epithelial metastases occur. As a rule blastomycetes cause marked proliferation of tissue and but little infiltration with leucocytes, thus showing little toxic action. The secondary nodules in blastomycosis have the same inflammatory character as the primary nodules. The morphology of the so-called "cancer bodies" is not identical with that of the blastomycetes. There is no evidence that blastomycetes have anything to do with the production of human cancers.

(6) *Cell Inclusions in Cancer and Non-Cancerous Tissue, R. B. Greenough.* — This worker examined ninety-seven specimens of tissue, both normal and pathological, for the presence of Plimmer's bodies. He reached the following conclusions regarding the occurrence and nature of these bodies. Cell inclusions of a constant type are found in practically all cases of cancer of the mammary gland. They are also found in noncancerous disease of this organ. They were not found in sarcoma or epithelioma. Their appearance, staining reactions, and situation in the cell are such as to justify the hypothesis that they are the result of the secretory activity of the epithelial cell, and that there is no reason for attributing a parasitic origin to their occurrence.

Summary, Nichols.—It has been claimed by the adherents of the theory of the parasitic origin of cancer that:

(1) A proliferation of epithelial cells analogous to the lesions seen in cancerous tumors can be produced by certain well known protozoa (nodules caused by the coccidium oviforme);

(2) Certain skin lesions characterized by epithelial cell proliferation are due to the action of a so-called protozoon (molluscum contagiosum);

(3) Blastomycetes are constantly present in human cancers and are the cause of the lesion;

(4) By experimental inoculations of animals with "blastomycetes" true epithelial or cancerous nodules can be produced;

(5) Finally, the well-known endocellular bodies seen in the protoplasm of cancer cells have a definite morphology, are "parasites" and the cause of cancer.

As the result of the lines of work pursued by the investigators above named it is concluded in regard to these questions that—

(1) That the lesions produced by the cocidium oviforme is essentially a process of chronic inflammation and is not analogous to the lesion seen in cancer.

(2) The lesion in molluscum contagiosum is characterized by certain changes in the epidermis, is not due to the action of a protozoon and is not analogous to cancer.

(3) The so-called "blastomycetes" ("saccharomycetes") of Sanfelice and Plimmer are torulæ.

(4) The lesions produced by these "blastomycetes" (torulae) are essentially nodules of peculiar granulation tissue, are not cancerous, nor in any sense true "tumors."

(5) Blastomycetes are not constantly present in human cancers.

(6) The peculiar bodies seen in the protoplasm of cancer cells are not parasites, nor the cause of the lesions but probably are in part at least typical stages of the process of secretion by glandular epithelium.

EDITORIAL COMMENT.

ANOTHER OFFICIAL REPORT ON THE ADULTERATION OF FOODS AND DRINKS.

MODERN civilization may be charged with the adulterations practiced in foods and drinks. The demand for goods in almost impossible places and times and conditions has necessarily called into use artificial means for the preservation of foods and may be said to require their employment even at the risk of a degree of healthfulness. There is a limit, however, to this practice considering the welfare of the people and it is within the province of good government to determine the boundary line.

An official investigation has been carried on in Great Britain during the past two years to determine the extent of the practice of adulterations and also whether it be injurious and in what proportions it becomes so. The report is considered at some length in the *Boston Medical and Surgical Journal** and is interesting, especially on account of its official character. Of 4,251 samples of food examined, 1,659 or thirty-nine per cent were found to be treated with preservatives. One thousand two hundred and forty-seven contained boron preservatives, 320 salicylic acid, 20 formalin and 143 sulphites. Cream, butter, margarin, bacon, ham, sausages, potted meats, pork pies, lime juice, cordials and fruit syrups bore the highest percentages. Coloring matters were found to be extensively used.

The following recommendations of the committee appear to be perfectly fair and reasonable and should, we believe, merit general consideration:

(1) That the use of formaldehyde or formalin, or preparations thereof, in food or drinks be absolutely prohibited, and that salicylic acid be not used in a greater proportion than one grain per pint in liquid food, and one grain per pound in solid food. Its presence in all cases to be declared.

(2) That the use of any preservative or coloring matter what-

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ever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drug Acts.

(3) That the only preservative which it shall be lawful to use in cream be boric acid or mixtures of boric acid and borax, and in amount not exceeding twenty-five per cent, expressed as boric acid, the amount of such preservative to be notified upon the vessel by a label.

(4) That the only preservative to be used in butter and margarin be boric acid or mixtures of boric acid and borax, to be used in proportions not exceeding five per cent, expressed as boric acid.

(5) That in the case of all dietectic preparations intended for the use of invalids or infants chemical preservatives of all kinds be prohibited.

(6) That the use of copper salts in the so-called greening of preserved foods be prohibited.

(7) That means be provided, either by the establishment of a separate court of reference, or by the imposition of more direct obligation on the Local Government Board, to exercise supervision over the use of preservatives and coloring matters in foods, and to prepare schedules of such as may be considered inimical to the public health.

ANNOTATIONS.

McDOWELL MEMORIAL NUMBER.

THE next issue of The Physician and Surgeon will be a McDowell Memorial number. The material has been contributed by a Kentucky physician, and possesses not only valuable historic data but genuine literary merit as well. Notwithstanding the fact that nearly a century has passed since the demise of DOCTOR EPHRIAM McDOWELL, the father of ovariotomy, this reminiscence contains a vast amount of information regarding the intrepid operator and his hazardous operation that has not heretofore been published. The paper, which is very exhaustive will be illustrated by photoengravings of DOCTOR McDOWELL, his office and residence, and the monument erected to his memory by the Kentucky State Medical Society.

A NEW SCOURGE IN THE PHILIPPINES.

IT would be expressing the belief of some to state that the Filipinos were enduring the wrath of God. It is a fact of recent knowledge that they were scarcely freed from terrible bondage to Spain and her unscrupulous agents when they became engaged in a more destructive conflict with our own soldiers. The death or capture of most of the belligerent leaders has finally undermined their own independence. Peace with us now seems assured, but a new scourge has come upon them in the form of the cholera pest. Death and even fire still stares them in the face. On the 20th of March, two cases, that had been sent to the San Juan de Dios Hospital for treatment, were discovered to be suffering from Asiatic cholera. It is supposed the infection originated with the use of vegetables introduced from Hong Kong and Canton. During the next fifty-five days one thousand and five cases of cholera were reported in Manilla. Eight hundred of that number have died. About eighty-five per cent of the cases were Filipinos. The population of Manilla is given as about 300,000. Eleven-twelfths of them are regarded as belonging to the ignorant class. In addition the scourge has visited the provinces and during the same time affected about three thousand persons and caused a mortality averaging about seventy-five per cent.

For the restriction of the disease rigid inspection with disinfection was begun early, measures taken to afford healthful food and water, camps and hospitals furnished, and even crusades begun against flies and the maggots in the *esteros*. Fortunately bubonic plague is believed to have disappeared, but the reports of the canvass of lepers continue to increase. Though not as numerous as supposed by the friars, who estimated them at from fifteen to thirty thousand, still it is predicted that there are five thousand lepers in the Phillipines.

THE SUBSTITUTING DRUGGIST.

"HUMAN nature is about the same the world over." Every line of business bears its due proportion of honest folk and swindlers. From the latter class the law aims to afford protection but failures are frequently reported. Among them are those who, in filling our prescriptions substitute for what is called for, something else. The mercenary motives of such persons are more easily discernible than they usually suppose. Their punishment is at times prompt and severe. Because it is not always so, the evil persists. The problem resolves itself into self-protection for both patient and doctor. Both may for the time being ignorantly suffer the injury, but when suspicion has once been aroused against him the substituting druggist will surely get his due. Business dishonesty will not always succeed.

MEDICAL NEWS.

A DANGEROUS COMMUNICABLE DISEASE.

ANENT the question as to whether typhoid fever is a disease dangerous to the public health, the Michigan State Board of Health unanimously adopted the following timely resolutions at its regular meeting of May 15, 1902, which was held in Lansing.

WHEREAS, One Board of Supervisors and one circuit court in Michigan have declared that, in their opinion, typhoid fever is not a communicable disease "dangerous to the public health" as contemplated in the law requiring prompt action by local health officials; and

WHEREAS, Such action endangers the public health, therefore

Resolved, That in the opinion of this State Board of Health, typhoid fever is a dangerous communicable disease, and "dangerous to the public health" in the meaning of the laws of Michigan, and it should be promptly reported to the local health officer, and by him promptly and efficiently restricted.

Resolved, That sanitarians now believe that typhoid fever is spread in several ways, as by means of urine and other excreta which may infect drinking water, or be conveyed by direct contact, or through the air, or by flies, or as dust to food which if eaten uncooked may cause the disease; therefore it is of great importance that local health officials act promptly and thoroughly for the restriction of the disease.

Resolved, That the best interests of the people demand that householders and physicians shall promptly report every case of typhoid fever as a "disease dangerous to the public health" as the phrase is in the law, that health officials act promptly for the restriction of every outbreak of typhoid fever, and that boards of supervisors and courts shall recognize the fact, now well known to leading sanitarians, that typhoid fever is a "disease dangerous to the public health," which by the cooperation of all classes of our officials and people may be very greatly restricted.

RECENT PUBLICATIONS.

REVIEWS.

GORHAM'S BACTERIOLOGY.*

BEGINNERS in the study of bacteriology will find this little volume of great practical value. Bacteriologic technique is clearly described and the illustrations though often diagramatic have been chosen with the idea of impressing the student with the characteristics of the typical form of each bacterium. In the section devoted to pathogenic bacteria the most important methods of the clinical demonstration and differentiation of special microorganisms are given. The appendix considers: Bacterial Measurements by photography, Moulds and Yeasts, the Preparation of Stains and Reagents used in the Study of Bacteria and a Table of Synonyms. On the whole the work has much to commend it. D. M. C.

*A Laboratory Course in Bacteriology. For the use of Medical, Agricultural and Industrial Students. By Frederick P.

Gorham, A. M., Professor of Biology, Brown University; Bacteriologist to the Health Department, Providence, Rhode Island. A 12mo volume of 198 pages, with 97 illustrations. Philadelphia and London. W. B. Saunders & Company, 1901. Cloth, $1.25 net.

SAUNDERS' MEDICAL HAND-ATLASES.*

THIS is the second volume entitled "Pathologic Histology," the first having been noted some time ago. It takes up the following subjects: The liver, pancreas, urinary organs, the male genitalia, the female sexual organs, central nervous system, the skeletal muscles, skin, bones and joints. The suggestive plates taken in connection with the text furnish an admirable help to the beginner.

*Atlas and Epitome of Special Pathologic Histology. By Docent Dr. Hermann Dürck, of the Pathologic Institute of Munich. Edited by Ludvig Hektoen, M. D., Professor of Pathology in Rush Medical College, Chicago. Volume II.—Liver; Urinary Organ; Sexual Organs; Nervous System; Skin; Muscles: Bones. With 123 colored illustrations on 60 lithographic plates and 192 pages of text. Philadelphia and London: W. B. Saunders & Company, 1901. Cloth, $3.00 net.

VENEREAL DISEASES.*

THIS little work has already reached its third edition. Comparison with the second shows some rearrangement, revision and additions which brings the work up-to-date. It is admirably adapted for the student, its brief and comprehensive form making it possible to more easily get hold of the principles involved than larger works supplying more detail. The latter is better appreciated by the advanced student.

*By James R. Hayden, M. D., Chief of Clinic and Instructor in Venereal and Genitourinary Diseases in the College of Physicians and Surgeons, New York, et cetera. New third edition, thoroughly revised. In one handsome 12mo. volume of 304 pages with 66 engravings. Cloth, $1.75 net. Flexible leather, $2.25 net. Lea Brothers & Company, Publishers, Philadelphia and New York.

SAUNDERS' MEDICAL HAND-ATLASES.*

THIS is an admirable work. Volume I is essentially a book of finely executed lithographic plates. They have to be seen to be appreciated. Volume II treats first of the principal properties of bacteria and then of their botanical arrangement and includes a description of the important varieties. It is a work calculated for the advanced student and to assist in original research.

*Atlas and Epitome of Bacteriology. By Professor Dr. K. B. Lehmann, Director of the Hygienic Institute in Würzburg: and

R. O. Neumann, Dr. Phil. and Med., Assistant in the Hygienic Institute in Würzburg. *From the second enlarged and revised German edition.* Edited by George H. Weaver, M. D., Assistant Professor of Pathology, Rush Medical College, Chicago. In two volumes. Part I, consisting of 632 colored figures on 69 lithographic plates. Part II, consisting of 511 pages of text, illustrated. Philadelphia and London: W. B. Saunders & Company, 1901. Cloth, $5.00 net.

PROGRESSIVE MEDICINE: VOLUME IV, DECEMBER, 1901.*

SUMMARIES of the literature on the following subjects are to be found in this most excellent volume: Diseases of the Digestive tract and allied organs, the liver, pancreas and peritoneum, by Max Einhorn; genito-urinary diseases, by William T. Belfield; anesthetics, fractures, dislocations, amputations, surgery of the extremities, and orthopedics, by Joseph C. Bloodgood; diseases of the kidneys, by John Rose Bradford; physiology, by Albert P. Brubaker; hygiene, by Henry B. Baker; and practical therapeutic referendum, by E. Q. Thornton. The articles are all of so high a character that special mention is unnecessary. It is certainly a worthy complement of the series for the year.

*Edited by Hobart Amery Hare, M. D., assisted by H. R. M. Landis, M. D. Per annum in four cloth-bound volumes, $10.00. Lea Brothers & Company, Philadelphia and New York.

PHYSICAL DIAGNOSIS.*

THE fourth edition of this work is a distinctly useful manual of three hundred pages, averaging nearly two hundred and fifty words to the page. It is well fitted for the instruction of beginners, since it states only important points in an accurate, brief, lucid manner and avoids the excess of detail which is so confusing to the novitiate. It is up-to-date. The major part of the book is devoted to the physical signs of normal and pathological chest conditions—including diseases of the heart and lungs. A chapter is wisely devoted to examination of the abdomen, since it is just as important to know the proper method of examining the abdomen as the chest, A valuable feature of the book for the student, is the summing up of the various signs and symptoms of the numerous diseases of the lungs and heart. To my mind the author does not emphasize sufficiently the great superiority of the Bowles stethoscope. A chapter is devoted to the use of the sphygmograph aud cardiograph in diagnosis. The latter part of the work is given to the consideration of the blood, sputum, analysis of the stomach contents, and a chapter to the making of an autopsy. The chapters are necessarily short, but contain much practical, useful information for the busy practitioner and student. J. R. A.

* By James Tyson, M. D. P. Blakiston's Son & Company.

The Physician and Surgeon

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ORIGINAL ARTICLES.

MEMOIRS.

THE PASSING OF THE HISTORIC McDOWELL BUILDING AT DANVILLE, KENTUCKY.*

BY WILLIAM LANE LOWDER, B. S., M. D., McKINNEY, KENTUCKY.
AUTHOR OF "A PILGRIMAGE; OR, THE SUNSHINE AND SHADOWS OF THE PHYSICIAN."

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

INTRODUCTION.

WHEN history recalls the deeds and dwells upon the memory of EPHRAIM McDOWELL, when he has been at rest seventy-two years, surely it is a melancholy thought to perceive, that within a few days, or weeks at most, this historic old building will exist in story only, as it has recently been sold, and will be torn down to make room for a more pretentious building. It had long been the intention of the members of the medical profession of Kentucky to purchase this historic old building and its site and preserve them as treasures in memory of their famous occupant—the illustrious McDOWELL—of a century ago. But the opportunity of thus securing them has now passed. The cause of this seeming neglect on the part of the profession of Kentucky was no doubt due, in part at least, to the lack of a leader in this movement. Someone to have taken the initiative step was all that would have been necessary to have accomplished the purpose. Kentucky's physicians have ever been ready and willing to aid and assist in all laudable undertakings for the benefit of medicine and its votaries. As evidence of this, the handsome shaft—in the Danville churchyard — the McDowell monument, erected by the profession of the State, though a silent witness, bears lasting testimony of the loyalty of its donors. The old adage, "What is everybody's business is nobody's business," will forcibly apply to the "Passing of the Old McDowell Homestead in Kentucky."

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*An address delivered at the annual meeting of the RUSSELL SPRINGS (Kentucky) MEDICAL SOCIETY.

The writer is painfully aware that no word from him can add a single laurel to the crown of the immortal McDowell, whose history and services to mankind have been so beautifully and truthfully portrayed by other hands far abler than his. He is also aware of the fact that many intelligent and competent physicians and surgeons know but very little concerning the life and character of McDowell and his original operation—the first ovariotomy. A little reflection on the life and character of such a member of our guild, together with the history of his operation and the circumstances connected with it can but be productive of good. No physician can meditate upon this subject without thinking the better of his calling.

In the preparation of this article, the writer makes no special effort at literary flourish. He makes no claim to the pen of a DeQuincy, or to the tongue of a Clay, a Marshall, or a Breckinridge; and he is exceedingly anxious not to appear as one attempting to paint the lily or adorn the rose. Consequently the following pages are not presented as a classic to medical literature; and to avoid the poisoned arrows of the critic, has not been the aim. On the other hand, he would be simply a plain, humble, yet reverent servant for plain, humble, and reverent strangers in the study of the life and labors of this matchless man; even as the sexton of a beautiful cathedral directs the steps of the respectful visitor through the sounding archways of his loved minster. Should a perusal of these lines in any way inspire the "youth," sustain the "manhood," or console the "aged" of the profession, the writer will consider his time well spent, and his endeavor will not have been in vain.

THE HISTORIC OLD BUILDING.

This historic old building, of which the accompanying picture is a good representation, has for many years been used as a tenement house, inhabited chiefly by Negro families. It was a model house in its day; but the ruthless hand of Time has robbed it of much of its former grandeur. It has seen "yon weary winter sun twice fifty times return" though yet in a fair state of preservation. Within this building, in the midnight darkness, Ephraim McDowell lighted the torch which has shone forth with resplendent glory in this brilliant noonday of abdominal surgery. Beneath this time-worn roof was laid the foundation for a great revolution in the *ars chirurgica;* and as a sequence there goes forth a benediction to every hamlet in the known world; from every hearthstone in Christendom there returns a blessing to the memory and the last resting place of Ephraim McDowell.

"Chirugica's towers, thy lights resplendent blaze,
Dries woman's tears and lengthens out her days.
McDowell and Sims, of our Columbia's clime,
Began the work, moved onward, nigh sublime.
To woman, then, these blessings shall be given,
Queen of the home, and home the type of heaven."

HOUSE IN WHICH DOCTOR EPHRAIM McDOWELL, IN DECEMBER, 1809, PERFORMED THE FIRST OVARIOTOMY, AS IT APPEARS IN DANVILLE, KENTUCKY, TODAY.

" Within this home the soul has fared
And from this throne its ventures dared.
What bounteous visions filled this spot?
What dreams of pleasure long forgot?
Nor hope, nor joy, nor love, nor fear
Have left one trace of record here."

It was within this sacred precinct, that the operation was first performed, which carried the light of life into the shadows of impending gloom, the message of hope into the realms of despair; opening the prison to them that were bound and giving beauty for ashes—the beauty of a newborn existence, of youthful and happy maternity, in place of ashes for which the inevitable urn seemed already waiting.

"Within these walls was life's retreat
This space was thought's mysterious seat,"

where the origin of the great thought, and still greater courage, that gave expression to the thought that, without the sanction of precedence, and unaided by the advice or sympathy of others, culminated in the institution of an operation by which thousands of *fair women*, heretofore doomed to *early death*, *now live* to revere his name; and when the granite shaft, which a grateful profession has erected above his ashes, to signalize what he was, and what he did, shall have fallen into decay—

"His silent voice will plead for thee
When time unveils Eternity."

The same old door stands sentinel at the entrance to the hallway; and it is said the same old *latch* adorns its front as in the days of yore. This simple memorial, to the thoughtful, carries much meaning with it. The sweetest memories of our lives cluster around our domestic emblems, and will ever be the theme of the poet's song and the minstrel's strain, while "music hath her charms." The fireside around which we were wont to gather, the chair in which our loved ones have sat, the picture upon which their eyes have looked, the harp their hands have swept! —what jewels can replace their value? You doubtless remember in folklore the enchantment that DOUGLAS JERROLD wove about a hatpeg? How at the christening of the child they gave it fine gifts of diamonds, pearls and laces; and when the fairy godmother came, and they expected that she would eclipse them all with the magnificence of her dowry, she gave it simply a hatpeg? They wondered what good could come of that. The boy grew to be a man. In wild pursuits his riches were wasted, and at last he returned home and hung his hat upon that peg; and while the good man's hat was hanging there unity, peace and plenty sprang up in his home and the hat-peg was truly the talisman of his life. Had I the wand of the magician I would weave a fitting legend around this artless memento—a simple latch. There is much in the emblem. It tells of many summons upon mercy's mission that did not sound in vain. Ofttimes has it roused to action one whose deeds have filled the world with fame, and in the silent watches of the night, when the balance of life and death trembled in his hands, in the hovel of the lowly and in the palace of the rich, were wrought deeds of heroism unsung, inspired by the genius of those who now are dust.

"Even in their ashes live our wanted fires."

And these hands which have wrought so untiringly for science and humanity—

"These hands a richer meed shall claim
Than all that wait on wealth or fame '

On a bleak and barren December day, in 1809, when the wood —the oak, the aspen, and the willow were leafless; and not a thrush had yet essayed to clear the furrowed brow of winter; history tells us that this symbol of alarm, as a sentry perched on the office door of a village surgeon, witnessed the gathering of an excited and an angry mob. The sheriff of the county at that time interfered, and effected a compromise; if such it might be called; in which he stated, that in case the patient recovered from the effects of the operation, all would be well with him; but in case she succumbed to the results of the surgical procedure about to take place, he would be at the hands of a merciless mob. Chill and cheerless must have been the comfort around him. His feelings, no doubt, were expressed by the following couplet:

" Truths would you teach to save a sinking land
All shun, none aid you, and few understand."

Chagrin and disappointment appeared to hang frowning around him, and its very apparition seemed to haunt his every motion, but soothed and charmed by the fitful visits of the happy reflection of self-sacrificing deeds done for the good of suffering humanity, and crowned as in a vision, with the holy wreath, he seemed to wanton in a fairy land, and view the Elysian fields of Paradise. The operation was successfully completed; and the wild flowers of sunshine sprang as it were beneath his boyish tread; opening in advancement, expanding in maturity, and illuminating his pathway with all the richness of luxuriance. This household genius alarmed the threshold of a happy and an honorable home, whose master, as he had bravely answered to signals to duty here below, so when the greater summons came, he as truthfully answered that, and lay down the milk-white flower of a stainless life.

Kentucky has given to fame her share of sons—to statesmanship, a CLAY, a LINCOLN, and a JOHN C. BRECKINRIDGE; to arms, a JOHNSON, a PRESTON, and a BUCKNER; to surgery, a McDOWELL, a DUDLEY, a YANDELL, and a host of others. A goodly company! Stately names! And chief among all of these is that of him, who bears the marks of our guild—EPHRAIM McDOWELL. None have added more luster to her fame, "For the achievements of the statesmen at last succumb to the pitiless logic of events; the voice of her orators grow fainter with coming ages; and the victories of her soldiers will be found at last only in the libraries of students of military campaigns, whilst the fame of this village surgeon, like the ever-widening waves of the inviolate sea, will be wafted to the utmost shores of time, hailed alike by all nations in all ages, for having lessened the burden and prolonged the span of human life."

"His deeds will shine forever bright,
When Sun and Stars are set in night."

Should a student of medicine, in centuries hence, ask who first performed ovariotomy, the answer would be ready and unequivocal. The noble men of this class responded to the summons of Providence for a glorious work, and like the chosen of old, many closed their work with the blood of martyrdom. Greater heroism was never displayed by man or woman. Martyrs burned at the stake, could not escape the punishment if they would; but these personifications and chrystallizations of heroism would not abandon their posts of duty and escape the dangers if they could; but their mission is ended. They at last reached the pure Empyrean, and to use SHELLEY'S words, robed in dazzling immortality sit on thrones

"Built beyond mortal thought,
Far in the Unapparent."

BIOGRAPHY OF McDOWELL.

DOCTOR EPHRAIM McDOWELL, in his day, the greatest surgeon of Kentucky, and renowned in the history of medical science as the "Father of Ovariotomy," was born in Rockbridge County, Virginia, November 11, 1771, and died at Danville, Kentucky, June 20, 1830, aged fifty-eight years. He came with his father, JUDGE SAMUEL McDOWELL, to Danville, Kentucky, in 1784; was liberally educated at Georgetown, Kentucky, studied medicine in the office of DOCTOR HUMPHREYS, of Staunton, Virginia; went to Europe in 1793–4, and studied medicine in the University of Edinburgh, Scotland, and during a part of that time was a private pupil of the famous DOCTOR JOHN BELL; returned to Danville, in 1795. In a hallowed spot, a typical American home, November 11, 1771, EPHRAIM McDOWELL first saw the light, and doubtless on a night when nature was in her wildest mood. Outside of the immediate household it was an event of no moment, and about which none seemed especially to care. Little did they dream that the occasion was prophetic of a genius destined to lay the foundation for a great revolution in the *ars chirurgica*, and to become one of the greatest benefactors of the human race.

It has been truthfully said, that great men, like great mountains, stand alone, with the valley of ancestry on the one side and the gulf of posterity on the other. But history tells us, however, that this towering character did not stand alone, for the foothills of his ancestry were of decided magnitude. Excepting Doctor Brashear, of Bardstown (the first surgeon in the United States who successfully performed amputation at the hip-joint), early Kentucky and the West had no surgeon of distinction. The fame of Doctor McDowell's foreign tour and study drew to him a large practice; and for nearly a quarter of a century, until Doctor Benjamin W. Dudley, of Lexington, rose to eminence, he had almost undisputed possession of the surgical field of Kentucky and the Southwest. "He

EPHRAIM McDOWELL, M. D.

was monarch of all he surveyed." He occasionally operated in the adjoining states; and patients came to him from hundreds of miles of distance. But his imperishable fame—that which has made him distinguished in every land, throughout the world, where medicine is cultivated as a science—sprang from the fact that he was the *first surgeon in the world who performed the operation for the removal of diseased ovaries.*

At Danville, Kentucky, he removed an ovarian tumor from a MRS. CRAWFORD, in December, 1809, thus inaugurating an operation for the cure of a hitherto almost inevitably fatal affection, one that had repulsed every assault of science. MCDOWELL performed this operation thirteen (13) times, with eight (8) recoveries (over sixty-two and one-half per cent); this, too, long before the days of anesthesia—chloroform, ether, et cetera, and when Danville was a mere village. The average length of life in a woman, after an ovarian tumor is discovered, which is not removed by operation is but two years, and those of much suffering. This wonderful operation has, within ninety-three years past, 1809–1902, in the United States and Great Britain alone, directly contributed more than ninety thousand (90,000) years of active and useful life to the women thus relieved. A remarkable fact and coincidence in medical history is—that while Kentucky's earliest great surgeon originated ovariotomy, Kentucky's recently deceased great surgeon, DOCTOR JOSHUA T. BRADFORD, *excelled the whole world,* in successfully performing it, ninety per cent of his cases recovering.

DOCTOR MCDOWELL courted, to use common parlance, a MISS SALLIE SHELBY, daughter of GOVERNOR ISAAC SHELBY, first governor of Kentucky. His life in simplicity and purity is one well worthy of record. In regard to this courtship but little can now ever be known. Whether it was of the ENOCH ARDEN character; or that of ROBERT BURNS and MARY CAMPBELL, will never now be positively known. History tells us that she was a winsome lady; as well as MCDOWELL was a handsome man. Their ashes repose in the family burying lot at Danville, Kentucky.

It is but fitting in passing, while noting the qualities of this great surgeon, to not overlook the virtues and attributes of his noble wife. His *success* was doubtless due, in a great measure, to *her* own untiring efforts. She has never been mentioned in history alongside of this great man. Brethren, it pays to note what the thoughtless might call the "little things" of this world. Oftentimes, on the long and lonesome ride, "when twilight dews were falling" and the "evening shades appeared" as a token "of parting days," this little hand lifted the gate-latch to a worn, weary, and an affectionate husband. We can imagine the résumé of their reveries. Fifteen years ago the writer sat beneath the gifted and eloquent voice of DOCTOR EDWARD R. PALMER, years since departed, in the old lecture hall of the University of Louisville. From his "Farewell address," which was a matchless production of its kind, I quote a little from memory. Among many good things which he said, in fact all that he said was good, he alluded to the embryonic doctor's future wife. At that time none, or but very few of the class were married. His words are ringing in our ears yet.

"When riding along fields of waving grain, from which the ripening odor has filled the air with all its fragrance; along dusty highways beneath the scorching rays of a torrid sun, when the din of the harvester is heard in the distance and the carol of the lark recalls to memory happier days gone by; stop and let the horse graze. Pluck a violet from a hedge near by. Tenderly carry it home and offer it as a gift to that little woman, who has been waiting the approach of your footsteps for doubtless many weary hours. Pin it upon her breast—that breast which you once promised to protect and support. The intrinsic value of a little flower, as all well know, is comparatively nothing; a penny would buy it anywhere, were it available. But to her it means a great deal. It makes her know that *you thought of her.* In hanging out your sign let her have a word to say. She knows more than the thoughtless public might imagine. It may be a little *too high*, or a little *too low*, but that *soft hand* that has guided us in matters of more magnitude, can surely guide us in this."

The good people of Danville would honor their town and themselves by erecting, in their court house yard, a monument of marble or statue of bronze to this great benefactor of the human family. In the "Lives of Eminent American Physicians and Surgeons of the Nineteenth Century," DOCTOR S. D. GROSS says of him: "Had McDOWELL lived in France he would have been elected a member of the Royal Academy of Surgery, received from the king the Cross of the Legion of Honor, and obtained from the government a magnificent reward—as an acknowledgement of the services he had rendered his country, his profession, and his fellow-creatures.

The McDowell family, in its various branches and connections, is one of the most distinguished in Virginia and Kentucky. When JOHN McDOWELL, of Rockbridge county, Virginia, was killed, he left three children. Of these, SAMUEL, the eldest, with his wife, MARY MCCLUNG—leaving in Virginia his eldest daughters, twins and married—emigrated to Danville, Kentucky, in 1784, with seven sons and two daughters. Of these, the sixth son, DOCTOR EPHRAIM MCDOWELL and two of his brother JOHN'S children, married two daughters and a son of GOVERNOR ISAAC SHELBY, hitherto mentioned. MAJOR GENERAL IRVINE MCDOWELL, of the United States army was a near relative of DOCTOR EPHRAIM MCDOWELL. DOCTOR MCDOWELL was a man who lived greatly in advance of his days; to use the language of TENNYSON—

"He dipped into the future,
Far as human eye could see."

Stepping from the "wearied summit" of fifty-eight years, he passed into that realm of spirit life toward which he had long looked and wondered, and to these celestial employments, which await such souls as his, in the Great Beyond.

"At last the rootlets of the trees
Shall find the prison where *he* lies,
And bear the buried dust they seize
In leaves and blossoms to the skies."

SCENE OF THE McDOWELL MONUMENT.

IT was a cool afternoon in July, and the shadows were falling eastward on fields of waving grain and lawns of emerald velvet. Overhead a few light clouds were drifting, and the green boughs of the dreaming cypress were gently fanned by a light wind from the west. There was the sound of the whetting of a scythe, and near by, the twittering of many birds upon a cottage roof. On either side of the main thoroughfare, which runs like a white rivulet through banks of green, and thorny hedges were shining, and the bright sod was spangled with all the wild flowers of Kentucky summer. An odor of lime trees and of new-mown hay sweetened the air for miles and miles around. Far off to the west, in the horizon's verge, just glimmering through the haze, rises the lofty canopy of old Centre College; and a passer-by tells me this is McDowell Park. If peace dwells any where on this earth its dwelling place is here.

The visitor comes into this ancient churchyard—now known as McDowell Park, having long since been abandoned for burial purposes—by a pathway leading from a stone turn-stile at the street, through the park; and in one moment the whole world is left behind and forgotten. Here is a scene similar to the one from which GRAY'S ELEGY was written. Here are the "nodding elms"; here is the "yew tree's shade"; here "heaves the turf in many a mould'ring heap." All these graves seem very old. The long grass waves over them, and some of the stones that mark them are entirely shrouded with ivy. The lettering on many of the "frail memorials" has become almost obliterated by the passing of the seasons. None of them is neglected or forlorn, but all of them seem to have been scattered here in that sweet disorder which is the perfection of rural loveliness. There never, of course, could have been any thought of thus creating this effect; yet it remains to win the heart forever. And here, amid this mournful beauty, the old church itself nestles close to the ground, while every tree that waves its branches toward it, and every vine that clambers on its surface, seems to clasp it in the arms of love. Nothing breaks the silence but the sighing of the wind in the trees, beneath which the visitor muses, and where the brown needles, falling through many an autumn, have made a dense carpet on the turf. Now and then there is a faint rustle in the ivy; a fitful bird-note serves but to deepen the stillness; and from a rose tree near at hand, a few leaves flutter down in soundless benediction on the dust beneath. There is no need here of "storied urn or animated bust." The whole place is his monument, and his original operation—giving health and happiness to "countless thousands" yet unborn gives to the soul of the place a form of seraphic beauty and a voice of celestial music—is his immortal epitaph.

"Here scatter'd oft, the earliest of the year,
  By hands unseen, are showers of violets found;
The redbreast loves to build and warble there,
  And little footsteps lightly print the ground."

McDowell's life is one of the best ever recorded in the history of medical literature. It was one of the best lives ever recorded in the history of medicine. It was a life singularly pure, noble and beautiful. In two qualities, namely: sincerity and reticence, it was exemplary almost beyond a parallel; and those are qualities, which professional character in the present day has great need to acquire. McDowell was averse to publicity. He did not sway by the censure of other men; neither did he need their admiration as his breath of life. Surgery, to him, was a great art; and he added nothing, or but little to surgery until he had first made it as nearly perfect as it could be made by the thoughtful, laborious exertion of his best powers, superadded to the spontaneous impulse and flow of his genius. History tells us that the result of this great operation was recorded on *three sheets of paper.* And DOCTOR JOHNSON, editor of the *London Medico-Chirurgical Review*, at that time refused to publish it, on account of the article being so short and illy written. Many voluminous writers have sneered at him because he wrote so little. The most colossal form of human conceit, probably, is that of the individual who thinks all other creatures inferior, who happen to be unlike himself. This reticence on the part of MCDOWELL was, in fact, the grand emblem of his sincerity and the corner-stone of his imperishable renown. There is a better thing than the great man, who is always speaking; and that is the great man who only speaks when he has a great word to say. MCDOWELL has left to posterity but little recorded literature; but his great operation was perfect at the time when it was performed, supreme and unapproachable. He did not test merit by reference to ill-informed and capricious public opinion, but wrought according to the highest standards of art which learning and taste could furnish. His operation forms an English classic. He was a man whose conduct of life would, first of all purify, extend and adorn the temple of his own soul, out of which should afterward flow, in their own free way, those choral harmonies that sooth and exalt the human race. He lived before he wrote? The soul of the operation was the soul of the man. His operation is the first of its kind recorded in history—it was his thought—which he has somewhere expressed in better words than these—that human beings are only worthy those feelings endured which are engendered when death has just taken from us the objects of our love. That was the point of view from which he habitually looked on the world; and no man who has learned the lessons of experience can doubt that he was right.

No visitor to this churchyard can miss either its inspiration or its imagery. MCDOWELL has been dead seventy-two years, but the scenes of his rambles and reveries have suffered no material change. There is no need to search for him in any special spot. The house in which he once lived can easily be discovered; but every nook and vista, every green lane and upland lawn and ivy-mantled tower of this delicious solitude is haunted with his presence. The night is coming on and the picture will soon be dark; but never, while memory lasts, can it fade out of the heart. What a blessing would be ours, if only we could hold forever that exaltation of the spirit, that sweet, resigned serenity, that pure freedom from all the passions of nature and all the cares of life, which come upon us in such a place as this! Alas, and again alas! Even with the thought this golden mood begins to melt away; even with the thought comes our dismissal from its influence. Nor will it avail us anything now to linger at the shrine. Fortunate is he, though in bereavement and regret, who parts from beauty while yet her kiss is warm upon his lips—waiting not for the last farewell word, hearing not the last notes of the music, seeing not the last gleams of sunset as the light dies from the sky.

It was a sad parting, but the memory of the place can never be despoiled of its loveliness. As I write these lines, I stand again in the cool and dusky silence of the great surgeon's church, with its air of stately age and its fragrance of cleanliness, while the light of the western sun, broken into rays of gold and ruby, streams through the great painted windows, and softly falls upon the quaint little galleries and decorus pews; and looking forth through the low arched door, I see the dark and melancholy boughs of the dreaming yew tree, and nearer, a shadow of rippling leaves in the clear sunshine of the churchway path, and all the time a quiet voice is whispering, in the chambers of thought—

"No farther seek his merits to disclose,
Or draw his frailties from their dread abode;
(They alike in trembling hope repose)
The bosom of his Father and his God."

McDOWELL'S MONUMENT.

BENEATH this granite shaft, repose the sacred ashes of the "Father of Ovariotomy;" doubtless, scarcely a vestige of his mortal remains could upon investigation be discovered—he having long since, "mingled his bones with the dust."

"Whether, did these fingers delve the mine,
Or with the envied rubies shine?
To hew the rock or wear a gem
Can little now avail to them.
But if the page of truth they sought,
Or comfort to the mourner brought,
These hands a richer meed shall claim
Than all that wait on wealth or fame."

"Avails it whether bare or shod,
These feet the paths of duty trod;
If from the bowers of ease they fled
To seek afflictions humble shed.
If grandeur's guilty bribe they spurned,
And home to virtue's cot returned,
These feet with angels feet shall vie,
And tread the palace of the sky."

DESCRIPTION OF THE MONUMENT.

ON the front face of this monument is a medallion of MCDOWELL, and beneath it a tablet bearing the inscription:

MONUMENT ERECTED TO THE MEMORY OF McDOWELL BY THE KENTUCKY STATE MEDICAL SOCIETY.

"A Grateful Profession Reveres His Memory and
Treasures His Examples."

On the remaining tablets, on the different sides, are further inscriptions as follows:

"Beneath this Shaft Rests the Remains of
EPHRAIM McDOWELL, M. D., the Father of Ovariotomy."
"By Originating a Great Surgical Operation,
He Became a Benefactor of His Race,
Known and Honored throughout
the Civilized World."
"Born in Rockbridge County, Virginia, November 11, 1771;
Attended the University of Edinburgh, 1793–4;
Located at Danville, Kentucky, in 1795;
Performed the First Ovariotomy in December, 1809."

I do not want to appear enthusiastic, to a degree beyond good taste; but would you think me far wrong were I to couple the victorious issue of the late sad internicine conflict, and the operation of ovariotomy as in different fields, the most stupendous events of modern times? Both are to be credited to Kentuckians. ABRAHAM LINCOLN, of "old Hardin county," effected the one and DOCTOR McDOWELL accomplished the other. Nor yet in the opinions of many, do the two achievements admit of comparison. Powerful cabinets, far-seeing ministers, renowned captains, a daring and multitudinous soldiery, a rich, a steady, a united, and a persistent people contributed to the success of the former. Its glory was won amid the blare of trumpets, the groans of men, the shock of contending armies. The glory of the other belongs to but one man—is single and indivisible, was won amid the smiles of fair women, and by the cunning of a single hand which, unaided and alone, plucked victory from an enemy which, before McDOWELL'S time, had defied all that was subtlest in art, and repulsed every assault of science.

CONCERNING THE PATIENT.

It is but fitting justice in passing to note the heroic character of the patient—MRS. CRAWFORD—living sixty miles southwest of Danville, on Green river, in Green county, Kentucky. DOCTOR McDOWELL faced dangers from storm and flood, in clouds and darkness at night, at times lost in the dense forest. He was actuated by the higher principle of his profession. He feared neither *man* nor *devil;* he knew no fear except that of doing wrong and the fear of God. The degree of his happiness was determined by the magnitude of his undertaking.

As has been previously stated, DOCTOR Mc DOWELL was called in December, 1809, to attend a MRS. CRAWFORD, suffering from an ovarian tumor, and at once suggested its removal. But he stated to her that, so far as he knew, the operation had never been done — that it would be an experiment; consequently he could make no promise as to the outcome. By his manly presence and honest words he planted a new hope in the heart of despair. Thus, "he unlaced the bosom of confidence with key of personal magnetism."

The now historic patient gave her assent to the operation, which was performed as before mentioned, at Danville, Kentucky, in December, 1809. History, or tradition rather, says that McDOWELL before beginning his operation offered up a prayer. Whether or not this is true, will perhaps never be positively known, as McDOWELL has been at rest seventy-two (72) years, and the oldest citizen now living in Danville could have only been a small boy at the time of his interment. This prayer, in literary merit and fervency, it is claimed by scholars has never been surpassed and seldom equalled by mortal man. What an example of true courage and resolute devotion was exhibited by this heroic, good, kind, gracious, loving and lovable man! No truer heroism has been or ever will be recorded on the never ending pages of immortal history. True courage must be deliberate, must be premeditated, must be actuated by a high, a holy and beneficent motive. It was not a maddening pseudoheroism stirred up by the rattle of the drum and shriek of the fife, a dash on battlefields, where man seeks to slay his fellow-man. The heroism of HANNIBAL, ALEXANDER, XERXES or NAPOLEON, can ever be compared with this cool, calculating man.

In 1817 "Three Cases of Extirpation of Diseased Ovaria," the first publication of ovariotomy, was made known to the world. It was long before Europe could believe that such a brilliant, original and magnificent improvement could originate in what then was known as the "backwoods" of America, but she has been apprised many times since of the genius of America's physicians and surgeons. My dear reader, should every other source of pride in your American citizenship fail, you have only to point to the recorded triumphs of American medicine and surgery to have it restored. In 1827, DOCTOR JOHNSON, editor of the *London Medico-Chirurgical Review*, after announcing the results of five cases of ovariotomy, four of whom had recovered, says: "There were circumstances in the narrative of the first cases that raised misgiving in our minds for which uncharitableness we ask pardon of DOCTOR EPHRAIM McDOWELL, of Danville, Kentucky, and of God." What a noble confession! This gracious man now rests in the "Silences," but his work abides and thus will it continue to live on and on, down through the ringing grooves of endless time, as a benediction to "countless thousands" yet unborn.

CONCLUSION.

It is one of the paradoxes of life that that which to eye and touch seems solid and enduring will assuredly crumble and disappear, while that which the eye and touch cannot reach is alone immortal. There is no work of man wrought on canvas, in marble or bronze, lifted in column or cathedral, but soon or late yields up its form and beauty as time's unceasing pendulum is swung by One with whom a thousand years are as one day, and one day as a thousand years. While on the other hand those viewless and intangible things, born of brain and soul, lofty thoughts and heroic purposes—humane acts—live on and on with all the dewy freshness of unfading beauty. "The beings of the mind are not of clay; essentially immortal." PRAXITILES and PHIDIAS—two Athenian sculptors—chiselled their dreams of beauty into the solid marble, singing merrily as they wrought,

> "For art can grant what love denies,
> And fix the fugitive";

only broken statues and wretched fragments remain to tell of their long forgotten dreams. But the wonderful philosophy of PLATO, the sublime thought of SOCRATES, the logic of ARISTOTLE, and the epic grandeur of HOMER are as young and inspiring today as when first syllabled beneath the academic groves, or chanted through the hamlets of Greece. Greece, lovely Greece! "The land of scholars and the nurse of arms!" Classic land, the haunt of the muses, the birthplace of eloquence, the mother of arts and sciences, that country whose landscapes has inspired the human mind to its loftiest flights of poesy, whose art has worked the wonder and admiration of every succeeding age—where and what is she? Her arts are no more. For twenty centuries the fragments of her columns, her temples, and her palaces have been noiselessly, silently crumbling back to classic dust. She fell an easy victim before the ruthless hand of the Macedonian tyrant; yet the Phillipics of DEMOSTHENES, and the wisdom and benevolence of BIAS—the "Prince of Wise Men"—are as fresh and animating today as they were in the days of ancient Greece to their inhabitants. Nineteen centuries ago the Temple of Jerusalem, forty and six years in building, crowned the summit of Mount Moriah as the great achievement of Jewish art—the pride and wonder of the nation. Today its ruins are scarcely discoverable; while the loving words of the lowly Galilean, uttered beneath the shadow of its glory, are the ever living comfort and solace of unnumbered millions. Egypt, the once proud and potent mistress of the Nile, like her mummies, sleeps in death. Her sombre pyramids —the watchtowers of eternity—rising majestic and colossal, the most impressive monuments ever reared by man still stand, and the huge Sphinx still tosses in the face the unsolved riddle of its being; but the broken angles and loosened stones of the former, and the battered face of the latter, attest their subjection to the crumbling touch of time. But the heroic and immortal deeds of McDOWELL will live forever. Smiles have come oftener than tears, joy oftener than grief, and many a cheerful ray of glad sunshine has forced its way through the clouds of a stormy sky; and hope itself has long since found the unknown quantities of time, in the equations of eternity.

NOTE.—For the photographs, from which the foregoing engravings were made, I am indebted to DOCTOR JAMES G. CARPENTER, of Stanford, Kentucky; two of which have already appeared in medical literature.

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THE AUTHOR OF THE McDOWELL PAPER.

WILLIAM LANE LOWDER, B. S., M. D., whose photoengraving illustrates this sketch, is a native of Indiana, having first seen light at Tipton, February 25, 1861. He received his literary education at Valparaiso and Danville, Indiana, obtaining the degree of Bachelor of Science in the latter city, July 13, 1883. Having elected the vocation of medicine he pursued a course of study at Louisville, receiving the degree of Doctor of Medicine from the Kentucky School of Medicine in 1886, and from the University of Louisville in 1887, Doctor Lowder's professional career was inaugurated in the Blue Grass State, his present field of labor being about ten miles south of Danville, the city in which the hero of the foregoing paper startled the medical world by performing the first ovariotomy. He is the author of an interesting monograph entitled "Sunshine and Shadows of the Physician," a notice of which recently appeared among the book reviews of this journal.

IN PLAIN LANGUAGE WHAT MAY WE EXPECT FROM TREATMENT OF OCULAR MUSCLE ERRORS?

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So much is being said and written about ocular muscle errors, it has occurred to me a plain statement of what may be expected from treatment, operative and nonoperative of these cases, might prove of interest.

What do we mean by ocular muscular insufficiency? A muscular insufficiency as applied to the ocular muscles is a condition by virtue of which the muscles tend to fix the eyes in a position other than normal, but which deviation is so slight it can be overcome by a constant muscular effort; and a normal position maintained. When this deviation from the normal cannot be overcome a squint results.

When an insufficiency exists a constant muscular effort is required from the time the eyes are opened in the morning until closed, to maintain a clear vision. If the muscles relax and the error is small a blurred vision results. If the deviation from the normal is greater double vision follows. Often patients, suffering from a slight deviation can work most of the day without serious symptoms, when suddenly the overworked muscle will relax, objects will become blurred or double vision occurs, with vertigo, pain in head or neck, and perhaps nausea or vomiting. In other cases there will be but a slight blurring, the patient will close his eyes for a few minutes, thus allowing the muscle rest, when work can be resumed for a greater or less length of time.

For our purposes only the direct acting muscle will be considered. The oblique muscles may be at fault, but the methods of testing and means of treatment are still somewhat unsatisfactory. We are able, however, to determine the strength of each of the four direct acting muscles. And it is only by determinating not only the amount of error, but the working power of these muscles that any rational conclusion can be drawn. As a deviation may be caused not only by overstrength of one muscle from its size or place of insertion, but by a weak antagonist, it would be irrational and unscientific to hope to establish a normal condition by weakening an already subnormal force. Hence the fallacy of early operations in these cases and the utter hopelessness of good results without considering not only all

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* Read before the Detroit Academy of Medicine.

the possible local and central conditions, but the patient's general health and surroundings. Then, too, exactly as many patients carry a greater or less amount of astigmatism without symptoms, many can be perfectly comfortable with muscle errors. It is only for the relief of symptoms that treatment should be instituted.

The symptoms produced by these errors are varied, no one being pathognomonic. The headaches may be somewhat characteristic. As a general rule headaches from refractive errors are frontal, while those produced by muscle errors begin as frontal, extend to the top of the head and finally settle in the back of the neck. Blurred images with dizziness and nausea, rapid exhaustion with sleepiness, and double vision after prolonged near work—any combination of these symptoms together with diverse nervous symptoms may present itself in some forms of the ocular muscle errors.

While I do not care to bore you with the recital of cases I wish to refer to a few to give an idea of the results obtained in certain forms of deviation.

A man, aged thirty-five, capitalist, after auditing his books which he did the first of each month, would be sick for two or three days with what he called a sick headache. So severe were these attacks and so referable to his near work that he refrained from excessive use of his eyes the rest of the month. He was nearsighted but has been properly corrected by glasses. Muscle test showed one degree deviation outward, the strength of the external rectus excessive, but the internal rectus could develop only about one-fifth the average normal power. By the use of prisms this was soon developed to normal when the symptoms disappeared and after six weeks' exercise of three minutes three times daily the treatment was discontinued.

This patient has been under observation seven years and he has been entirely free from his old attacks.

Another patient, a girl, aged ten, consulted me in April, 1894. She had suffered daily from intense headaches, dizziness and nausea for six years. Examination showed tendency to turn outward of nine degrees. Although glasses were given to correct the astigmatism and the internal rectus developed, the symptoms continued. A total tenotomy of the external rectus reduced the error to naught at the time of operation. It later went back to two degrees, but no symptoms developed and she has had perfect comfort ever since day of operation.

For the deviations upward, if of small amounts up to three degrees, prisms may be worn. This permits the eye to rest in its natural position and the rays of light are deflected by the prism so that corresponding points on the retinæ are stimulated. If the amount of error is greater than three degrees and constant, a tenotomy of the superior or inferior rectus should be done.

The use of prisms is well illustrated by the following case:

A man, aged twenty-eight, physician, consulted me in May, 1895, with a history of severe headaches, frontal and occipital. Besides his mixed astigmatism his right eye turned up one degree. After wearing a correction for his astigmatism for two months without relief of symptoms a one degree prism was added to his glasses. The headaches disappeared at once and he was comfortable until about a year ago when he broke the lens. Not having his prescription he took the broken glass to an optician. The prism was overlooked and on wearing the glass his old symptoms returned. After trying them for three months the error was discovered and the prism replaced, when perfect comfort was established.

Another patient, a woman, aged thirty-three, gave a history of having had headaches almost daily for several years, the severity depending directly on the amount of near work done. Examination showed besides her small amount of astigmatism a deviation of the right eye upward of nine degrees. Glasses were given to correct the astigmatism and strychnia administered internally. After two months, the symptoms being unchanged, I did a total tenotomy of the right superior rectus on October 10, 1894, the deviation being reduced to two degrees. Later, however, it went back to seven degrees. On January 18, 1895, the left inferior rectus was divided reducing the error to naught, but later it went back to three degrees. In April, 1895, I again divided the right superior rectus and unfortunately overcorrected the error about six degrees. A suture was inserted at once and the patient placed before the instruments while the eye was brought exactly to naught. After a few hours the patient observed a vertical diplopia and I was immediately notified. Examination revealed the fact that the suture had given way, and much to the disgust of the operator and discomfort of the patient had to be reintroduced. This time it held and the recovery was further uncomplicated, the glasses being discarded and perfect comfort established. The patient is still under observation and comfortable.

Slight deviation upward and outward more often gives symptoms than a small deviation inward. Fortunately, however, they are more amenable to treatment. When a slight deviation inward does give discomfort and the use of prisms will not relieve it makes an unfortunate combination for the patient, and a longing on the part of the operator to have his patient go elsewhere. No; not even all eye cases are cured.

I have carefully selected patients who have been under observation at least five years. Nothing is more uncertain than reports of recent results in surgery. Only remote results that have stood the test of time can add to the success or failure of any scientific procedure.

As some of our cases carry muscle errors without symptoms, so will we treat an occasional patient when the cause of the headaches may be very remote from the eye. My object is not to prove that all headaches are ocular in origin, but to show that in the muscular imbalance, as in astigmatism there exists a certain definite factor that may be responsible for a serious chain of symptoms.

912 CHAMBER OF COMMERCE BUILDING.

PRACTICAL SUGGESTIONS ON THE ADMINISTRATION OF ETHER AND CHLOROFORM.*

BY JOSEPH B. WHINERY, M. D., GRAND RAPIDS, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

I HAVE been asked to give you a few practical points on the administration of general anesthetics. As my experience has been almost entirely limited to the use of ether and chloroform, the remarks I make will apply to these two only. There is no doubt that nitrous oxide, either alone or in combination with oxygen or ether, is a reliable and safe anesthetic and has a wide range of usefulness, yet owing to the complicated apparatus necessary for its administration it is hardly practicable outside of institutions, and the man in general work must rely on ether and chloroform. It is always a satisfaction to an operator to know that he can trust his anesthetizer. This position carries with it almost as much responsibility as the operation and in many cases surpasses it in gravity and importance. The anesthetist should have a thorough knowledge of the agent employed and be quick to recognize symptoms of danger.

You will find that women as a class pass under the effects of general anesthetics easier than men. There are fewer subconscious voluntary movements and less tendency during the stage of excitement to violent resistance and the use of incoherent speech. If there is any tendency to profanity, a man usually

*Read by request before the Junior and Senior Medical Classes of the University of Michigan.

gives you a demonstration during the second stage. Another common habit is his proneness to expectorate into the inhaler before the stage of unconsciousness is reached. Vigorous patients do not pass under the influence of general anesthetics as readily as weaker ones. People of a tranquil temperament are easier to handle than those with excitable or neurotic tendencies. Alcoholics and those subject to other intemperate habits are apt to give trouble to the anesthetist.

When an opportunity is given, strict attention to numerous details before anesthesia will aid greatly in the work. Previous preparation is no small factor in the success of the anesthetist as well as of the operator. A light diet should be ordered for a few days prior to operation, and abstinence from food for at least six or eight hours before the anesthetic is given. Sometimes it happens that partly digested food taken fifteen or twenty hours before is vomited.

The bowels should be thoroughly evacuated by the administration of a purgative followed by an enema. The bladder should always be emptied. The urine should be examined and the condition of the kidneys noted. Drinking a large amount of water for some days preceding the operation is of benefit as it helps to supply the loss of fluid through the skin and partially compensate for the loss of blood which might occur. The best time for anesthesia is after the patient has had a good night's rest—8 or 9 o'clock in the morning. If the work is done in the afternoon, a light breakfast at 7 or 8 o'clock is permissible. Make a physical examination, and, if possible, do this before the time for anesthesia. Note the general appearance of the patient, the color of the face and lips, whether there is any difficulty in breathing, the mobility of the chest, the condition of the abdomen—whether distended or flat. Examine the heart and lungs and mark the character of the pulse. A correct estimate of the patient's pulse will often prevent uneasiness and overstimulation during the course of anesthesia. Before starting the anesthetic see that the air passages are free and that the mouth is emptied of artificial teeth, chewing gum and tobacco. You will often find women unwilling to dispense with their artificial teeth. Insist on their removal. You will frequently be called upon to administer anesthetics for the extraction of teeth or for an examination of some kind. Always see that the clothing is loose and that corsets, collars and belts are unfastened. Do not allow yourself to give an anesthetic in a dentist's chair with the patient in an upright position. This is one of the frequent causes of accident from the use of chloroform.

During operations covering a considerable length of time attention must be paid to the temperature of the room and the clothing of the patient. A temperature between 75° and 85° should be maintained. He should be covered with woolen blankets, and woolen leggings should be worn. During anesthesia from ether or chloroform there is a fall of bodily temperature, due in a measure to the reduction of tissue metabolism. Care in keeping the patient warm will tend to prevent shock and possibly a pneumonia or other bad after effects.

I will not, enter into a discussion of the comparative merits of the two agents. There are points in favor of each. Chloroform is much more poisonous than ether, and greater skill and care is necessary in its administration. You will find as you settle in different localities that there is a predisposition to use one or the other anesthetic. In many hospitals chloroform is regarded as so dangerous that it is seldom used without the consent of consultants. To my mind this is an exaggerated idea of its danger. In starting an anesthetic let your bearing be such as to gain the confidence of your patient. A few reassuring words will quiet his apprehension. The man who has not full confidence in his ability to administer the anesthetic is not a fit man for the work. This means that one should have a complete mastery of every stage and be prepared for any emergency which may arise. It is necessary to vary the amount of the anesthetic with each individual. What is required for one would be dangerous to another. Each patient is a law unto himself in anesthesia. One should have a knowledge of the operation about to be performed and the probable length of time it will take.

Before starting your work scrub your hands with soap and water. This is especially necessary in operations about the head, face and neck. Even if you cover the field of anesthesia with a sterilized towel, it may be displaced and your hands will come in contact with the surgeon's hands or instruments. Always use a clean ether cone or chloroform inhaler and sterilize your chloroform frame after use around septic cases. The simpler the apparatus the better. In the administration of chloroform I am in the habit of using an Esmarch inhaler, covering it with outing flannel. One may have a number of these covers made up clean and ready for use. With ether a paper cone or a straw butcher's sleeve covered with a towel and then closed and stuffed with absorbent cotton or, probably better, cheese cloth makes a simple and satisfactory inhaler.

Always use fresh anesthetics. Chlorform should be kept in the dark in full bottles as light and air may decompose it. It is handy to use ether out of one-fourth or one-half pound cans and then one is certain of getting the fresh article.

Although there are a number of reputable manufacturers of ether and chloroform, I always feel safer with Squibb's products. Chloroform should possess an agreeable, bland and nonirritating odor. You should remember that when chloroform comes in contact with gas flame it is decomposed forming a poisonous product known as phosgene or chlor-carbonic oxide. This substance is broken up in the blood into hydrochloric acid and carbon monoxide. The latter may cause death. Often the patient seems to suffer less from the irritating effect of this gas than others who may be present. It causes an irritation of the mucous membrane of the air passages and sets up a very annoying cough. Bronchitis and pneumonia have followed its inhalation.

It is hardly necessary to remind you that ether should not be brought into close contact with the naked flame of gas, lamp or candle,

For emergencies it is well to have on hand a hypodermic syringe in good working order. Tablets of strychnin, atropin and nitroglycerin, pearls of nitrite of amyl and ammonia water, mouthgag and tongue forceps are usually found in an emergency outfit, but as your experience widens the less often will you need to use tongue forceps. In operations around the mouth the tongue may be easily managed by running a stout piece of silk through the end of it and holding it out with this. Ordinarily by pressing forward the lower jaw from the angle and at the same time keeping the chin up the tongue is kept from interfering with free respiration. It is a wise precaution to have on hand normal saline solution of proper temperature and the apparatus for giving it intravenously or subcutaneously.

The hypodermic administration of morphin and atropin before anesthesia is advised by some, but personally I have never seen the necessity for its use. A one-twentieth or one-thirtieth grain of strychnia given hypodermically to patients in a reduced state will be of service.

In starting with ether I prefer the slow method, holding the cone some distance from the face and gradually lowering it and increasing the strength of the vapor. By the gradual administration of the anesthetic I have been able to successfully anesthetize both a child and an adult without arousing them from natural sleep. I regard the forced method of giving ether as unnecessary and cruel. Instruct your patient to close his eyes and breath in the natural way. Nothing is gained by his taking deep respirations at the beginning of the process. He soon reaches an apneic state, temporary cessation of breathing occurs, the rythm is interrupted, and time is lost in reestablishing the normal respiration. After the patient has become accustomed to the vapor of ether slowly lower the cone and exclude the air. If there is a marked stage of excitement it is well to get over this as rapidly as possible. As anesthesia progresses the rate of respiration is increased. When your patient is completely under, as is shown by muscular relaxation, loss of reflex and state of pupils, aim to carry him along with the smallest possible quantity of anesthetic. As has been aptly said, the great secret is to keep the patient on the balance, just on the point of coming out. A condition of false anesthesia may occur with children and occasionally with older people during which the muscles are relaxed, the pupils are contracted and fixed and the other symptoms of complete anesthesia are present, but an incision in the skin will arouse the patient and make it necessary to defer operative procedures until he is thoroughly anesthetized. It is never necessary to saturate a person with ether as is so frequently done. It only tends to increase the amount of mucus secreted, it is apt to give rise to prolonged vomiting afterward, and it lengthens the time of recovery from the effect of the drug.

During the early part of anesthesia, you will often notice a tremor of the eyelids, common in nervous people. This will subside under the quieting effect of the anesthetic. The pupils will usually serve as a reliable index to the degree of anesthesia. In the third stage they are contracted, the degree of contraction varying with the individual case. The beginning of an operation often has a tendency to cause reflex dilatation of the pupil. Neurotic patients and children often show a marked susceptibility to reflex dilatation of the pupil all through an operation. If you are in doubt as to whether a dilated pupil is due to a toxic effect of the drug or otherwise, a suspension of the anesthetic for a short time will clear the matter up.

You may keep track of the pulse by placing your finger on the temporal or facial artery. I find the facial artery a convenient place as one can watch the pulse while keeping the lower jaw in the proper position. Note the character of the pulse yourself; do not leave this part of the work to another physician or a nurse. No one is in so good a position as the anesthetist to judge of the condition of the patient. During the course of an operation you will often find it possible to remove the cone entirely and allow the patient to take a few breaths of air. This is especially useful when there is a tendency to duskiness or cyanosis. Train your ear to note the character and quality of the patient's respiration. In this way you soon learn to detect an irregularity or shallowness of breathing.

In giving chloroform start in the same way as with ether, holding the inhaler at some distance so as to have the vapor well diluted with air. Give it by the drop method, always bearing in mind the danger of concentrated vapor; air containing three or four per cent of chloroform vapor is strong enough. As stated before, I favor a simple Esmarch inhaler. If you have not at hand a special dropper an ordinary two-ounce bottle with a slit in the cork will answer every purpose. I do not care for the use of a towel or napkin, as one is not able to judge so well the degree of concentration of vapor one is getting. It has been my custom when the second stage of chloroform anesthesia is reached to hasten the process by increasing slightly the amount of chloroform and putting a loose towel around the edge of the inhaler, in this manner excluding more of the air. When this stage is passed you can keep your patient under with a smaller amount of chloroform and without the use of the towel. Under chloroform the pulse will often fall to fifty or sixty beats per minute. This in itself is not alarming, but if it varies and becomes irregular, it is wise to decrease the amount of anesthetic or change to ether. The respirations are not so satisfactory as those under ether. There should be little if any cyanosis during chloroform narcosis and any marked duskiness of the face shows that the patient is not getting sufficient air. One is rarely troubled with an excessive secretion of mucus or saliva during the administration of this agent as is often the case with ether. The vomiting which comes on at times during anesthesia is usually caused by allowing the patient to partially come out from the chloroform. If the symptoms of nausea are noticed early enough, one may be able to check it by pushing the anesthetic, but you cannot do this when giving chloroform nearly so often as you can when giving ether. Pay strict attention to your part of the work. Do not allow the work of the operator to infringe upon your attention. Be careful not to allow yourself to be unduly influenced by the operator, thereby pushing the anesthetic to a dangerous point. No interference on his part should be tolerated. The anesthetist should be capable of successfully carrying through his part of the work. When there are no contraindications my usual custom is to begin with chloroform and change to ether when the patient is well under the influence of the anesthetic. The vapor is much pleasanter to inhale than that of ether. It has been my good fortune never to have met with an accident while starting an anesthetic in this way. In the hands of the tyro ether is much the safer of the two, and if your experience with anesthetics is limited I would advise you to use ether throughout the anesthesia. Patients started under chloroform almost always change to ether well, but they do not go from ether to chloroform so satisfactorily.

Certain pathological conditions present in the patient often determine the selection of the anesthetic. You will frequently be told by the patient that someone has warned him never to take a general anesthetic on account of heart disease or some other serious lesion. The truth is that when urgently demanded an anesthetic can almost always be administered. In considering the heart it is not so much the heart murmurs one has to fear as a degenerated state of muscle fibre. People with organic valvular trouble can usually be carried through without difficulty —the influence of the disease being slight. In functional heart troubles the influence is insignificant. It is only in myocardial conditions—degenerations of the heart muscle—that any markedly bad effects are noticed. With a weak heart, and in nervous, apprehensive patients chloroform is the more dangerous. The contraindications for ether are rather respiratory than cardiac. In acute lung affections ether is contraindicated. Short, thick-necked, florid men, particularly if alcoholics, are bad subjects for ether. The general impression is that chloroform is the safer anesthetic for children and old people. This is not a reliable rule. Children are often highly susceptible to the poisonous effect of chloroform. Aside from the disagreeable irritation set up in the sensitive air passages, ether is a very satisfactory anesthetic for children. In the so-called lymphatic constitution of children with a lowered vital resistance, chloroform may give rise to alarming symptoms.

In acute and chronic diseases of the kidneys, chloroform is the less irritating of the two although it is well known that it, as well as ether, will produce albumen and casts, but the effect of the former is much less deleterious. I have never seen any ill effects from the use of chloroform in labor, and its effect in puerperal eclampsia is immediate and satisfactory.

Patients with a moderate anemia can usually be kept under with a small amount of either anesthetic, but in marked anemic conditions with a low percentage of hemoglobin anesthetics are unsafe. All authorities agree that it is very dangerous to give an anesthetic when the hemoglobin is thirty or under.

Some place the dangerous point at forty and others at fifty.

With a large empyema encroaching markedly upon the function of one side of the chest by mechanical effect anesthetics are to be given with caution. As a rule it takes but a small amount to keep these patients under. You will find that different depths of anesthesia are necessary for different operations, according to the degree of sensitiveness of the part operated upon; for instance, in gynecological work, it does not require as deep anesthesia for the repair of the cervix as it does for an operation on the perineum. Rectal work, as a rule, requires very deep anesthesia, and often it is very difficult to keep the patient quiet. In abdominal work deep anesthesia in the beginning is necessary in order to relax the abdominal muscles. As the operation progresses you can often carry the patient along under lighter anesthesia. Try to prevent nausea and vomiting during abdominal operations. These are annoying to the operator and tend to force the intestines out of the wound. Patients in Trendelenburg's position are easily managed as a rule. The dependent position of the head favors respiratory action.

Among the unpleasant after effects of either anesthetic are the nausea and vomiting which may follow. We have no reliable remedy for the prevention of these, but certain precautions against them may be taken. These may be enumerated as follows: Use as little of the anesthetic as possible; allow the patient to inhale the vapor of dilute acetic acid or vinegar before coming out from the anesthetic; move him about as little as may be during and after the operation; place the patient in bed with the head only slightly raised; wash out the stomach if much mucus has been swallowed or when the vomiting is proprolonged; withhold food after the operation and when forced to give something to eat allow nothing but hot, thin liquid in small quantities; keep the temperature of the room uniform; turning the patient well on his side before coming out of the anesthetic has been recommended—breathing is freer, mucus and saliva are not so apt to be swallowed, coughing is prevented and vomited matter is more easily expelled. The anesthetist should remain with the patient until there is no doubt of his coming out from effects of the anesthetic.

The danger signals,—sudden dilatation of the pupils; shallow, sighing respirations; absence of the pulse; irregular or intermittent pulse; sudden paleness or lividity of the countenance. When these alarming symptoms arise stop the anesthetic at once, stand the patient on his head, begin artificial respiration if necessary, use hypodermics of strychnin and nitroglycerin, divulse the sphincter ani, give inhalation of ammonia or amyl nitrite, and see that the tongue has not fallen back so as to interfere with the free access of air to lungs. Quick and cool headed judgment in averting or combating dangerous symptoms is imperative. The shock which sometimes attends an operation must be treated with reference to its cause. Very little is gained by pumping strychnin and nitroglycerin into a patient who has lost a large amount of blood and needs salt solution.

The study of anesthetics and their administration should be added to every medical curriculum. The theory of anesthesia, its physiology, pharmacology, and practice should be taken up. Every medical student, during his course of study, should have practical training under a skilled anesthetist. The time is not far distant when this specialty will obtain the recognition due to it and the trained anesthetist will occupy a position commensurate with the importance of his work.

ORIGINAL ABSTRACTS.

MEDICINE.

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AND
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The Work of the Digestive Glands and Estimation of Pepsin Digestion by Modern Instruments.—Jung-Franz (*Journal of the American Medical Association*, May 10, 1902) abstracts and comments upon Pawlow's work recently translated from the Russian into German by Walter under the title "Die arbeit der Verdaungsdrüsen."

Pawlow studied the processes going on in the stomachs of dogs by forming a sack from part of the stomach, taking care to keep the inervation perfectly intact. [By this method he confirmed a number of things already proved]. Pawlow demonstrated that after eating bread the gastric juice shows the greatest peptic strength, next in order being meat and lastly milk. The so-called gastric bread juice contains four times as much pepsin as gastric milk juice. Vegetable albumin calls for the largest amount of ferment from the pancreatic as well as from the stomach glands whereas milk albumin calls for little.

Pawlow describes a method devised in his laboratory by Mett for determining the amount of peptic digestion by means of capillary tubes.

Glass tubes with a lumen of one to two millimeters are filled with egg albumin and coagulated at a temperature of 95° centigrade. All tubes showing no air bubbles are closed at the ends to prevent evaporation and kept for three days after which they may be cut into small pieces as desired. A piece is put in one to two cubic centimeters of the liquid which is to be tested and the preparation placed in a thermostat at 37° or 38° centigrade for ten hours, at the end of which time one measures by the aid of a millimeter scale and a low power lense, the length of the entire tube [the diameter of the lumen is really of little importance] and the length of the column of coagulated albumin which has not been digested. The difference in numbers expresses in millimeters the length of the digested albumin column.

Borrisson investigated the above method and formulated the following law:

In the digestive juices under observation the quantity of pepsin is like the square of the rapidity of digestion, that is, like the square of the millimeters of albumin cylinder which were dissolved in equal time by the juices. Thus if a sample of gastric juice digests two millimeters the quantity of pepsin is designated by four.

The author reports the results of his application of the test with stomach juices of varying acidities and some of his conclusions are as follows;

(1) Normal values of pepsin digestion 5.5 to 5.9. millimeters.

(2) Sub and anacidity one to nine millimeters the average.

(3) The diminuition of pepsin does not run proportionate with that of hydrochloric acid. Even with a defficiency of hydrochloric acid. The value can be higher than that of mild superacidity.

(4) Superacidity generally has high and highest values of pepsin.

Pawlow advocates the general adoption of Metts' method.

D. M. C.

Cryoscopy.—Cryoscopy is the determination of the freezing point of a solution. The Beckman apparatus is advised. Molecular concentration determines the degree of the freezing point, nature, size and weight of molecule being immaterial. Cryoscopy is the simplest and most accurate means of determining the concentration of urine and blood. Though it does not enable the diagnosis of a morbid entity, it does reveal an insufficiency of the renal function. The normal freezing point of urine is from —1.3° to —2.2°, while that of the blood is —0.56 centigrade.

D. S. GRIM.

Diagnosis of Renal Diseases.—Echard and Castaigne introduce methylene blue in the diagnosis of renal lesion. In parenchymatous nephritis the blue appears in the urine earlier and is eliminated more rapidly than in normal kidneys, whereas in the sclerosed kidney the elimination is retarded and prolonged. The blue may be eliminated in part as a colorless base, the color appearing upon oxidation or shaking with the air.

D. S. GRIM.

SURGERY.

By HENRY O. WALKER, M. D., Detroit, Michigan.
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Complications Induced by Meckel's Ganglion.—The *Annals of Surgery* for April contains three papers on the subject of Meckel's diverticulum which represent some of the complications that it may cause and the surgery involved in relieving them.

The first, "Intestinal Obstruction from Meckel's Diverticulum," is by Albert E. Halstead, of Chicago. He describes the development of the diverticulum and calls attention to the fibrous band formed by atrophy of the vitelline duct, free at the end but more frequently attached to the umbilicus, mesentery, and in one case it caused obstruction by becoming attached to the stump of an appendix removed eight days before. In reviewing sixty-nine cases, he finds it attached to the mesentery in twenty-three cases, to the umbilicus in fifteen, to the small intestine in three, to the mesocolon, mesorectum, omentum and stump following appendectomy each one. The manner in which the adherent diverticulum may cause obstruction is as follows: "By the gut twisting around the band, by passing under the diverticulum and becoming twisted on itself. The gut may fall over a tense diverticulum and be obstructed. There may be kinking, because of attachment to bowel, when they become overdistended; obstruction by torsion or acute inflammation and prolapse of small intestine through an umbilical fecal fistula. The diagnosis of each case is important as every case of obstruction is a case for operation. The points of evidence worthy of mention are as follows: It occurs in children. There may be a history of previous attacks. The shape of the abdomen is like an inverted cone, due to distension of the small intestine above the point of obstruction. Local meteorism on right side of abdomen under costal arch. Early fecal vomiting. Tenderness on the right side on a level or just below the umbilicus. Within the last ten years it has frequently been mistaken for appendicitis.

The operation consists, when possible, in removal of the diverticulum. Some are satisfied to open the abdomen and cut the band that forms the obstruction. When the gut has become so changed that its integrity is questioned it is resected. He shows a mortality of fifty-nine per cent in operated cases.

Doctor Joshua C. Hubbard, of Boston, "Meckel's Diverticulum Patent at the Navel." This very rare condition is seldom operated upon and rarely cured. He gives a good description of the manner in which the diverticulum or intestine may pouch at the navel and be in danger when a supposed polyp is removed. The diagnosis is easily made by examining the material which passes the fistula. Treatment is begun as soon as the condition is discovered, by compression applied to prevent prolapse and complications. He reports five cures following operation and briefly describes the method employed. The oldest was ten months old when operated upon and the youngest three weeks old. In all cases the abdomen was opened and the diverticulum resected. The wound in the gut was closed by a double row of Lembert sutures. The abdomen was closed with layer sutures.

"Hernia of Meckel's Diverticulum," by Doctor Webster, of Ottawa. He reports a hernia of the diverticulum into the left inguinal canal of a female. There was a history of a fall three days before entering the hospital with symptoms of strangulation. The sac was opened and the presenting tumor was traced back to the intestine and was found to be a well-developed diverticulum with a mesentery of its own. It measured three and one-half inches, and at the point of removal from the bowel was large enough to admit the tip of the index finger. After removing the diverticulum the bowel was closed by two rows of Lembert sutures. Recovery. C. G. D.

GYNECOLOGY.

By REUBEN PETERSON, A. B., M. D., ANN ARBOR, MICHIGAN.
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Non-Surgical Premature Menopause. — Walter (*American Journal of Obstetrics,* February, 1902) reports an interesting case of premature menopause and reviews the literature of this rather unusual condition in a most thorough manner.

The patient was an English Jewess with a good family history except for a gouty taint on the father's side. She was a healthy child and first menstruated at the age of eleven, the flow being perfectly normal in time, duration and amount. With the exception of a slight flow, she never menstruated after her mother's death, which occurred when she was twenty-three years old. During the nineteen years she has been under Walter's care she has suffered from headaches, frequent urination, diarrhea, backache, eczema and hemorrhagic spots on the lower extremities, symptoms accompanying the menopause but which in this case may be due to other causes. The internal generative organs have atrophied gradually until the uterus is only about an inch in length and the ovaries are not palpable. The external genitals, however, are but slightly atrophied while the breasts remained full and round. Four points of interest are:

(1) The very early age of the menopause.
(2) The sudden advent of the menopause.
(3) Absence of any previous local or constitutional disease.
(4) Absence of any subsequent local or constitutional disease.

(1) Only four cases have been reported at an earlier age—one at seventeen, two at twenty, and one at twenty-two, the latter patient being sickly before and after the menopause.

(2) As regards suddenness, Tilt reports three or four cases occurring suddenly, but he does not state if they were married and gives very few particulars as to general health.

(3 and 4) As regards previous and subsequent good health at this early age (twenty-three) and unmarried no case is reported. The majority of such cases are said to be due to pronounced or incipient disease and these do not occur so suddenly. The consensus of opinion regarding premature menopause is expressed by Currier, who says that "premature menopause is unusual; therefore it is evidence or result of disease." Walter takes issue with this opinion and arrives at the following conclusions after a careful study of the literature and the symptoms furnished by her own case.

(1) Premature menopause can occur without any previous or subsequent disease.

(2) Premature menopause is not necessarily preceded by any change in the generative organs.

(3) Any changes found in these organs are probably postmenopastic, or due to disease not all related to the menopause.

(4) Premature, as well as normal menopause, is due chiefly to atrophy, inhibition, or disease of a local menstrual ganglion and nerve plexus, rather than disease or atrophy of generative organs.

PEDIATRICS.

BY ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
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Child Labor.—Barbour (*American Practitioner-News*, May, 1902) says the perfecting of machinery for cotton manufacturing in the South has so advanced that skilled labor is not much required and that as child labor is cheap the inducement for the manufacturers to employ this form of labor as largely as possible is marked. This condition exists only in the South as slavery of children is not permitted in any other portion of the civilized globe. He says two facts should be known: first that the hours of work for children under twelve years of age are often eleven and a half hours per diem: second, that the number of children under fourteen years of age so employed is over sixteen thousand and is increasing rapidly.

Stringent laws have been passed in England, Continental Europe, and the Northern States governing child labor, but in the South no adequate provision has been made for this helpless class. A potent objection to the employment of children is that they are prevented from obtaining an education, and these children grow up ignorant and untrained. He says we, as physicians, are closely concerned with the danger to the moral character of young girls and boys, who must develop to puberty in factory environments. Combine ignorance, lack of education and home influence with youth, and the wonder is that more gross immorality does not exist. The deleterious results of overwork, mental and physical; have been noted in various ways in the growing child, and the effects of fatigue upon the physical well-being of the child is very apparent by lessening markedly the power to resist infections. Another fact to be noted is the vitiated atmosphere which is found in all manufactories, the constant breathing of which predisposes to tuberculosis. The physician should through his personal work influence private opinion and so aid in the enforcement of laws for the protection of child labor.

Leucocyte Count in Diagnosis.—Douglass Head (*Archives of Pediatrics*, April, 1902) says that from the records of other writers and his own observations it is plain that the variability in the leucocyte count in the newborn and in the first year of life is such that in the diagnosis of disease it cannot be relied upon, except in those infections accompanied with a low leucocyte count. But beyond the age of two years in healthy children the leucocyte count is not different from that of adults. In typhoid fever of children he concludes that the low leucocyte count is as constant and as fixed as in adults, and that complications cause a leucocytosis.

The author says further that the value of the leucocyte count in typhoid fever in children is first as an aid in establishing a diagnosis, and second as a means of determining the presence of complications. After studying the blood count in typhoid fever, meningitis, lobar pneumonia, bronchial pneumonia, acute or articular rheumatism and appendicitis, he concludes from what has been written that the leucocyte count in sick children from two years upward is as invariable and fixed as in adults suffering from similar diseases, and the knowledge it furnishes is therefore reliable and the procedure should be more generally employed by clinicians. The leucocyte count possesses value in the whole realm of diagnostic medicine and especially in children because it furnishes knowledge supplied by a scientific instrument which is unprejudiced and unbiased in its findings.

The Immunity of Vaccination.—Crandall (*American Medicine*, February 10, 1902) says experience teaches us that vaccination in infancy and renewed at the end of childhood renders an individual practically as safe from death from smallpox as if that disease had been survived in childhood, and almost as safe from an attack. The duration of immunity is variable, being from five to six years in some, while in others, inmunity is for life. He thinks everyone should be vaccinated in infancy and in childhood, and not less than once in adult life, and also revaccinated in the face of an epidemic, if this precaution has not been observed within six years. He believes immunity is in direct proportion to the thoroughness with which it is done, as shown by the resulting scars, and that compulsory vaccination is warranted by more than a century of experience and should receive the hearty support of parents and physicians alike.

Effect of Excessive Temperature on Milk.—Dessau (*Pediatrics*, February, 1902), in a paper upon the action of heat upon cow's milk for infant feeding, calls attention to the chemical action of heat upon it. Milk being regarded as a raw article of diet, it would seem consistent that benefit would result through a proper method of cooking. The medical profession throughout the world is agreed that cow's milk is the best and most available basis for the preparation of a substitute for human milk. It contains the same elements of nutrition as human milk, although the relative proportions are different. It has been demonstrated that sterilized milk is somewhat easier to digest, but it tends to produce, upon long usage, scurvy and rickets, these being due, according to the author, to the chemical changes in milk from excessive temperature. Milk gradually heated to a temperature of 140° to 160° Fahrenheit for ten minutes gives a slight soft curd, and if diluted with water, the curd is still less in evidence. If this heat is applied without allowing the milk to boil, it will not impair the antiscorbutic and other vital properties of the milk, as is the case when sterilization is practiced, and it is entirely adequate to render the milk free from pathogenic germs. The experience of the author makes him emphatic in his claim that the action of heat upon cow's milk, when exposed for ten minutes in the steam cooker to a gradual rise of 140° to 160° Fahrenheit does not coagulate the albumens or nucleins, neither does it decompose the fats, nor render the calcium salts insoluble, but it does on the other hand destroy ninety-nine per cent of the vegetating germs found in milk, and it also modifies the curdling of the caseinogen, making it approach nearer that of the curd of human milk.

OPHTHALMOLOGY.

BY WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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Case of Tumor of Optic Nerve Sheath Removed by Kronlein's Method with Preservation of the Eye and Good Vision.—Pockley (*Archives of Ophthalmology*, March, 1902) reports that a boy aged thirteen gave history of having noticed for the last six or eight months his left eye was gradually becoming more and more prominent. Neither pain nor inflammation was present at any time, and there was no history of injury.

Examination.—Left eye pushed directly forward to extent of three-eights inch; no impairment of movement; no diplopia; pupil normal; tension normal; V = 5-12; moderate optic neuritis; indistinct feeling of resistance on pressure in the lower angle of orbit. Right eye and vision normal. Patient is a healthy-looking country lad, and examination fails to reveal any trace of disease elsewhere.

Diagnosis.—Retroocular tumor, situated within the muscular cone, pressing on, but not directly invading the optic nerve.

Treatment.—The growth was removed by Krönlein's method. In cutting through the bone a small circular saw mounted on a dental engine was used as an adjunct to the chisel. It was not necessary to divide the external rectus muscle. The growth was found to be attached to the outer side of the optic nerve, along about half or three-quarters of an inch of its length. It was stripped off the nerve without difficulty, the wedge of bone with its soft coverings replaced, and the skin wound sutured with horse-hair.

The eye went back to its place immediately. There was some slight edema of lids for a few days. Seventeen days after the operation the eye was quite normal. In extreme outward movement of the eye there was diplopia, but practically in all ordinary uses of the eyes there was no diplopia.

The tumor was a completely encapsulated growth, spherical in form, measuring three-fourths inch in diameter, and on section showed hemorrhages. Microscopically it presents the character of a round-celled sarcoma of an aberrant form, probably nonmalignant, and not likely to recur.

Krönlein's operation is performed by making a curved incision from the temple over the upper-outer part of the orbital margin through the skin on the nasal side of the outer orbital margin, curving back into the temple above the zygomatic bone. The incision is carried down to the bone along the orbital margin. The periosteum on the inner surface of the outer orbital wall is detached as far as the anterior end of the lower orbital fissure. A wedged-shaped piece is now separated from the outer bony wall of the orbit by chiselling from the upper end of the margin, obliquely down to the inferior orbital fissure and then horizontally from the lower end of the margin of the outer bony wall to the anterior end of the inferior orbital fissure. The prism of bone thus circumscribed is about three centimeters high and from three to four centimeters long. It remains in contact with all the soft parts of its edge and outer surface. When the operation on the contents of the orbit is completed the displaced bone is turned back into its place and the periosteum united with catgut and the skin with silk sutures. W. R. P.

NEUROLOGY.

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Expert Testimony.—Miller (*Fort Wayne Medical Journal*, February, 1902), referring to medical testimony in insanity cases, regrets the sorry picture the physician so frequently presents on the witness stand, and the little weight and influence his opinions have with the court and jury, so little in fact that the following statement from a supreme justice of one of our states, to the effect that "the opinion of a neighbor of good common sense was worth more than that of all the medical experts in the country," fairly represents a general impression. Another judge of equal rank said that if there was any kind of testimony, not wholly of no value, but even worse than that it was, in his judgment, that of the medical expert. And even the United States Supreme Court has gone out of its way to comment upon the unreliability of medical expert testimony. One reason, the writer states, for this condition is the fact that the physician generally is retained by one side or the other, and rather naturally tries to shade his opinion toward the side which employs him, hence he becomes biased, and prejudiced, and is then likely to go to almost any length to try to defend and sustain an opinion already given, which, due to this very bias was overstated in the first case, and so the opposing attorney tears him and his testimony to pieces, damaging his own reputation and that of the profession in general.

As a remedy to this unfortunate state of affairs, the writer suggests: first, nonpartisanship, which would mean more truth and candor; secondly, study of the case before going on the stand; third, "don't be afraid to say you don't know."

Paralysis Agitans.—Pearce (*Medical Fortnightly*, April, 1901) recommends rest and hypernutrition as essentials in the treatment of shaking palsy. He says: In an incipient case an ideal treatment would be to place the patient in the rest cure carried out to its fullest, and lasting over a period of two or three months, combining the entire régime of the cure, including isolation, rest, massage, and forced feeding, but excluding always the use of electricity, since any form of current is likely to irritate the already excited neurons. If the patient's stomach will stand it, there is nothing better than cod-liver oil. He also strongly recommends the hypophosphates, and as strongly decries the use of strychnin. For the actual treatment of the tremor he says there is nothing better than antispasmodics (hyoscyamus and conium) given in continuous dosage over a number of weeks, withholding the drugs for a fortnight, then renewing for three or four weeks, again withholding, and so reduce the administration gradually.

THERAPEUTICS.

By DELOS LEONARD PARKER, Ph. B., M. D., Detroit, Michigan.
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The Hot Air Treatment of Rheumatism.—Gold (*Journal of Advanced Therapeutics*, February, 1902) presents his views on the efficacy of hot air in the treatment of rheumatism, and says: "In conclusion, I believe that hot air is of especial value in acute and chronic articular and muscular rheumatism and neuralgias, and I am convinced that the therapeutic value of hot air is not fully appreciated by the general practitioner, and the use of this beneficent agent for sick and suffering humanity will be more general, and results very gratifying and surprising in the future."

Concerning apparatus for the application of this remedy, Doctor Gold says, there are several kinds but that all are based on the same principle.

"We have first the large body apparatus, arranged with a sliding mattress; the patient, being placed thereon, is easily pushed into the apparatus, ready for the treatment. This is designed and better adapted for hospital use. Then we have a smaller one, for individual parts of the body, and another for treating the knee only; these two are not large, and can be carried conveniently to the patient's home. They are made of galvanized iron (inverted U in shape), lined with asbestos, either closed at one end, with a metal cover, or by canvas fittings so as to conduct the heat readily to the part requiring treatment, when it is not possible to place the member to be treated within the apparatus. On the top there is a fitting for a high temperature thermometer, a slide to allow hot air to escape when necessary, and to improve the circulation of the air. The heat is generated by gas, gasoline, or alcohol, is admitted from below, and distributed by a carrier, evenly throughout the apparatus. A sling within is used as a rest when treating an arm or a leg. The part to be treated should be evenly and smoothly covered either with flannel, or Turkish toweling, two to five thicknesses, to absorb the perspiration and thus avoid scalding. Each treatment is of about one hour's duration. The temperature varying from 250° to 400° Fahrenheit, as the patient is able to bear it.

The following conditions are found to prevail during or after the treatment. Body temperature raised from 1–2° to 3° Fahrenheit, falling to normal within one hour after treatment; pulse accelerated five to twenty beats per minute, full and strong; a weak heart, if gradually accustomed to the heat, is stimulated and the treatment beneficial. There is flushing of the surface of the body, showing dilated capillaries, especially about the part treated; perspiration is profuse, which, as observed by Doctor Kessler, of Brooklyn, is strongly acid; the sebaceous glands are very active; the lymphatics are stimulated, facilitating absorption of abnormal deposits about rheumatic and gouty joints, and in the tissues; the kidneys are stimulated to greater action, with increased amount of uric acid; respirations are increased four or five to the minute; there is a decided soporific effect in most cases, the patient falling asleep after the treatment; occasionally during it. The patient notes a decided relief from pain, with a general sense of ease and comfort."

In demonstration of his views concerning the good effects of hot air in the class of cases referred to, Doctor Gold reports in detail several cases treated by himself. These included, one of a man suffering with articular rheumatism of the wrists, elbows, and knees; of another man, eighty-three years of age, affected with sciatica of long standing, and of another man with gonorrheal rheumatism of the knee. All of these cases were severe in character and yet all yielded readily when treated by ordinary remedies reinforced by applications of hot air made in the manner described above.

HYGIENE.

BY GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

Pet Animals and Disease Distribution.—The newspapers of New York have published the interesting details of a prominent society woman's display of affection for her dying and dead parrot (*American Medicine*, August, 1902). There was even a question, it seems, of an expensive funeral with many of the accessories usually accorded to those higher in the scale of being. The parrot is said to have died of a severe throat disease. According to one of the New York papers, owing to the swollen and inflamed condition of the bird's throat it was unable to talk, and seems also to have been unable to swallow. Notwithstanding this, the family are said to have bestowed many caresses upon the ailing bird. It may be as well to remind foolish individuals whose affections are so perverted that there is a very contagious disease which attacks especially the throats of parrots, and which on a number of occasions has been communicated to human beings with serious and even fatal results. This disease, called psittacosis, from the Greek word for parrot, was first studied about five years ago in Paris during an epidemic that developed in that city and was for a long time a mystery to attending physicians. Altogether about sixty human beings were attacked by the disease during one winter, and of these about forty per cent died. It is very probable that pet animals are vehicles for the distribution of a good many more diseases than has been thought. Disease germs very seldom travel through the air, though this is popularly supposed to be the usual method of conveyance for microbes. Flies, mosquitoes, birds, pet animals of various kinds, are undoubtedly quite often the medium of contagion. The more that is known of the biology of disease germs and of the intermediate host between man and man the more it is realized that usually living things and not inanimate objects are the carriers of infectious material. Some time we will reach a stage of civilization in which it will be realized that wild extremism in making pets of animals, denaturalizing their lives and making them liable to all the ills of humanity besides their own, is a relic of savagery, and is too often a manifestation of that barbaric selfishness of spirit that delights in slaves. When this bit of unthinking primevality is done away with we shall have less of the morbid spirit that fosters antivivisection and similar movements.

Kissing the Baby.—Doctor Kober (*American Journal of the Medical Sciences*) has the following to say of the sanitary aspect of the time-honored kiss: We do not say that a mother should not kiss her own child. Her baby is part of herself, and we suppose she must be allowed to do as she likes with it, although even a mother ought to bear in mind that her colds and sore throats are distinctly catching. But for strangers to kiss the baby is a piece of abominable impertinence. The whole business ought to be put a stop to. Think of the horrid moment when the adored baby toddles forward with its mouth up waiting to be kissed! And so far does folly go that most mothers would actually be offended if the visitors failed to respond to baby's "sweet advances"—very sweet—sometimes absolutely sticky! The fact is that kissing is the very antithesis of sanitary decency. To "engaged" young people it may perhaps be permitted as a foretaste of that more complete union which they hope to arrive at. But among others it ought to be regarded as an outrage.

PATHOLOGY.

By ALDRED SCOTT WARTHIN, Ph. D., M. D., Ann Arbor, Michigan
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The Analogies Between Plimmer's Bodies and Certain Structures Found Normally in the Cytoplasm.—LeCount (*Journal of Medical Research*, May, 1902) calls attention to the fact that methods involving the fixation of protoplasm by compounds of mercury are in a large measure responsible for the recent additions to our knowledge of the finer structure of protoplasm both of normal cells and those of malignant tumors, particularly those of carcinoma. The technical methods pursued by the investigators of the extranuclear architecture of resting and dividing cells, and those of investigators seeking to prove the existence of extranuclear parasites in cancer cells have been to a large extent similar.

A study of carcinoma cells for centrosomes, attraction spheres, ecto- and entospheres and the various other cytoplasmic formations described in normal cells would seem to be especially necessary at the present time owing to the general failure of those supporters of the parasitic etiology of carcinoma, whose evidence is largely based on histologic studies to even consider the existence of such elements in carcinoma cells, and by the further fact that there are certain analogies between the archoplasmic elements of normal cells and Plimmer's bodies. These analogies are not simply those of morphology and position but also affinity for dyes. The stains that have been found especially applicable in the study of centrosomes have also proved of great service in the demonstration of Plimmer's bodies. Borrel using carbolmagenta with heat and a counter-stain of picro-indigo-carmine controlled his results by the use of guinea-pigs testicles; he found that the parasites stained with the same dyes as did the centrosomes of spermatogenic cells. The position of the Plimmer's bodies with reference to the nucleus is similar to that of the centrosome. The rayed periphery sometimes observed in Plimmer's bodies suggests very strongly the converging of the astral fibres of the archoplasm at the margins of the centrosphere. Centrosomes with radiating spheres have been described in resting cells. The fact that normal centrosomes are smaller than Plimmer's bodies may be answered by the observation of Lustig and Galeotti that the centrosomes of carcinoma cells are larger than in other cells. The predominance of Plimmer's bodies in the growing portions of tumors is as much in favor of an archoplasmic as a parasitic origin, and furnishes another analogy; it also may be taken as an argument against the view that the bodies represent products of degeneration.

In conclusion, LeCount believes that we can safely state that there are analogies between Plimmer's bodies in cancer cells and certain structures in the cytoplasm of normal cells; and that we are warranted in requiring enthusiastic advocates of the parasitic theory of carcinoma, who use Plimmer's bodies as a support for their views, to exclude or account for the centrosome and the variously named formations of the archoplasm, in carcinoma cells.

Embryological Aspects and Etiology of Carcinoma.—Beard (*Lancet*, June 21, 1902) deals with aspects of carcinoma from the standpoint of the embryologist. He believes that "if the pernicious growth of the chorion after abortion is in reality carcinomatous, and it is recognized as such by pathologists under the head of malignant placentoma, deciduoma, chorioepithelioma, or destructive placental polyp, the cause of cancer is as clear as day." His conclusions are based chiefly upon his researches in elasmobranch fishes. To any but vertebrate embryologists there might appear to be no warrant for applying results obtained in animals so low down in the scale to man himself. The broad outlines, the laws, and even most of the details of the development are the same in man as in the fishes, and the life-cycle of the former can be interpreted in terms of that of the latter. Beard has found that under a certain age no single elasmobranch embryo has been seen in which all the germ-cells present might be described as normally placed. The percentage of vagrant germ-cells varies; it is usually from ten to twelve per cent in pristiurus and twenty-five to thirty per cent in raja batis. The places where they occur are numerous, in the body-cavity, upon the somatopleure, on the subintestinal vein, in kidney-tubules, in the pericardium, in the liver, in any part of the gut-epithelium, especially in the rectum, in the skin, rarely in the head or gill region, and practically always in the immediate neighborhood of the stomach in connection with the yolk stalk. Undoubtedly many of these germ-cells degenerate, and few, if any, of the vagrant ones, after a certain early period ever find their way to the germinal nidus. The embryomas of Wilms are to be regarded as products of such vagrant or persistent (in ovary or testis) primary germ cells. But many such vagrant germ cells occur in places where embryomas are never encountered; thus in the immediate neighborhood of the stomach, in the liver, in or under the skin and in the rectum. If the vagrant germ-cells of these places ever do develop they must give rise to some product not of the nature of an embryoma. It is of great interest that the common situations for the origin of cancer are the very ones in which vagrant germ-cells are most commonly found, rectum, pylorus, intestine, kidneys and skin. That cancer should be of frequent occurrence in what are embryologically holes and corners, places where layers and folds come together, as in tongue and larynx, is readily explicable. Such germ-cells are intruders in the situations originally taken up by them, and they may be pushed about, when in the way, until they land in some corner or other. Such a vagrant germ-cell should result in a more or less complete twin-embryo, but all gradations of this down to a very rudimentary embryo are found in practice.

At the basis then cancer is nothing more than the production abnormally of a phorozoon or larva within a sexual generation. Analogues to this are seen in hermaphrodism or apogamy. If cancer be the abnormal production of a phorozoon or asexual generation by a vagrant germ-cell and its progeny, why do not the other phases of the life-cycle primitive germ-cells, primary germ-cells and embryo arise? Were this to happen the cycle, though beginning and being carried out under abnormal conditions, would revert to the normal; such a reversion is always excluded. As conceived here carcinoma would be a disease peculiar to mammals, for in them the phorozoon or larva has become parasitic in adaptation to uterine development. It is therefore a sequal to uterine gestation, and is not known below the mammals, the animal lowest in the scale in which it has been reported being the short-headed phalanger. In fishes such as the skate or dog-fish neither a vagrant germ-cell nor its progeny could develop into a carcinoma, for the larval or asexual portion of the life-cycle is not passed as a parasite upon the parent; in other words below the metatherian and eutherian mammals the phorozoon or larva is not adapted for a parasitic existence upon the parent organism and thus cannot become abnormally a parasite upon it. The nature of Beard's argument may be summarized as follows:

"Granted the facts of the origin, migrations and history of the germ-cells of the vertebrates, and assuming the course of the life-cycle to be that previously indicated, by hypothesis cancer is derived from vagrant germ-cells which instead of forming a more or less complete embryo or embryoma, skip this and give rise to a larva or phorozoon of indefinite unrestricted powers of growth. This is of course purely hypothetical but it becomes the true explanation by the following facts. On the one hand, as my researches have shown, the hypothetical 'verirrte Keime' or 'lost germs' of pathologists not only exist but they are numerously represented and by things capable of abnormal development, the vagrant primary germ-cells. On the other hand the carcinomatous nature of such an abnormal growth of a larva or phorozoon has been abundantly demonstrated by Marchand for the instances of the pernicious growth of the chorion, chorioepithelioma. If such a chorion, the representative more or less complete of the asexual generation, when robbed of its embryo or when it fails to form such, can — and this has been established — give origin to a malignant carcinomatous tumor the nature of cancer is clear. The vagrant germ cell is the seed, while its fruit, sometimes represented by an embryoma, may on occasion take the form of a carcinoma.

"The etiology of carcinoma suggested will be recognized as one whose nature indicates nothing favorable to its prevention or extermination. It may be said to explain completely its peculiarities and hereditary character. But it is a despairing view. In this respect it is in only too close agreement with the experiences of physicians and surgeons. The one hopeful aspect is that in normal development at a certain period the embryo or sexual form is able in some way or other to suppress the asexual foundation upon which it arose and as a rule the victory of the former over the latter is complete."

RECENT PUBLICATIONS.

REVIEWS.

SYPHILIS: ITS DIAGNOSIS AND TREATMENT.*

In so brief a monograph the subject is by no means exhausted. It is, however, treated in a straightforward and comprehensive manner and with a fairness that is possible only from a thorough acquaintance with it.

*By William S. Gottheil, M. D., Professor of Dermatology and Syphilology in the New York School of Clinical Medicine; Dermatologist to the Lebanon and Beth-Israel Hospitals, the West Side German Dispensary, et cetera. Profusely illustrated. Pages, 216. Price, $1.00 net. G. P. Engelhard & Company, Chicago, 1901.

DOSE BOOK AND PRESCRIPTION WRITING.*

No student should content himself with this little volume as a text-book in drugs, but for what its name implies it will be a great help not only as an introduction to prescription writing but for handy reference. The author has proven himself a capable and successful writer on other occasions. He has succeeded as well on this. His products are works of great utility.

* With a List of the Official Drugs and Preparations, and the more important Newer Remedies. By E. Q. Thornton, M. D., Demonstrator of Therapeutics, Jefferson Medical College, Philadelphia. Second edition, revised and enlarged. Octavo, 362 pages, illustrated. Philadelphia and Boston. W. B. Saunders & Company, 1901. Bound in flexible leather, $2.00 net.

INTERNATIONAL CLINICS: VOLUME IV, ELEVENTH SERIES.*

This volume contains ten articles on therapeutics, six on medicine, five on neurology, seven on surgery, and one each on pediatrics, dermatology, and case record keeping. Among the contributors are such well-known authorities as Jacobi, Burnett, Duckworth, Bruce, J. B. Walker, N. Seun, Lydston, Deaver, Taylor and Gottheil. This volume contains one hundred and seven illustrations. Previous numbers have seemed incomparable, but this one falls short in no respect, and considering the price is a marval of cheapness.

*Edited by Henry W. Cattell, M. D., of Philadelphia, with many collaborators and contributors. Price, $2.00. J. B. Lippincott Company, Philadelphia, 1902.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES —VOLUME IV.*

THIS volume is an unusually valuable one. From first to last the subjects are of practical importance and well treated, They include erysipelas, evolution and evolution of man, eye, feces, food, foot fractures, gangrene, goiter, gunshot wounds, hand and fingers, head, heart, heart diseases, heredity, hernia, histological technique, house sanitation, infancy, and numerous others. Illustrations are also numerous, several being chromolithographs.

* By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M. D., New York City. William Wood & Company, New York, 1902.

DISEASES OF THE INTESTINES.*

THE American profession will welcome the appearance of the translation of the final volume of Doctor Boas' work on the diagnosis and treatment of the gastrointestinal tract entitled "Diseases of the Intestines." While the author has made it his aim to meet the requirements of the general practician, because of the exhaustive and concise description of physiologico-chemical processes and laboratory methods, the work must also prove of value to other scientific investigators. The volume is divided into two parts. Part I deals with the history and examination of the patient, the examination of the feces, and the diagnostic value of examination of the stomach contents and urine in intestinal diseases. The general therapeutics of intestinal diseases — diet, hydrotherapy, massage, electricity, enemata, medicines, et cetera. Part II deals with the etiology, symptomatology, diagnosis and treatment of the individual.

D. M. C.

*By T. Boas, Specialist for Gastrointestinal Diseases in Berlin. Authorized translation from the first German edition, with special addition by Seymour Basch, M. D., New York City. D. Appleton & Company, New York. Cloth, $5.00; sheep, $6.00.

DISEASES OF THE DIGESTIVE ORGANS IN INFANCY AND CHILDHOOD.*

IT has been ten years since the publication of the last edition of this work. Since then many advances in our knowledge of pediatrics have been made and the author has endeavored to incorporate these in the present edition. The chapters in which this is especially noticed are those on simple atrophy, infantile scurvy, rickets, lithemia, infections, follicular tonsillitis, nasopharyngeal adenoid hypertropy, proctitis and appendicitis; also extensive changes have been made in the chapter on feeding. One can learn much by a careful reading of the chapter on the general management of children. The chapter on massage is not as full as it might be; while speaking of the benefits derived from this method of treatment the author does not fail to criticise its indiscriminate use in the hands of the unskilled.

D. M. C.

* With chapters on the Diet and General Management of Children, and Massage in Pediatrics. By Louis Starr, M. D., Late Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, et cetera. Third edition, rewritten and enlarged. Illustrated. Published by P. Blakiston's Son & Company. Philadelphia, 1901. Price, $3.00 net.

PROGRESSIVE MEDICINE—MARCH, 1902.

THIS volume is contributed by the following: Charles H. Frazier—Surgery of the head, neck and chest; Frederick A. Packard—Infectious diseases, including acute rheumatism, croupous pneumonia, and influenza; Floyd M. Crandall—The diseases of children; Ludwig Hektoen—Pathology; St. Clair Thomson—Laryngology and Rhinology; Robert L. Randolph—Otology. Notable reviews are those on cranial nerves, heart and large vessels, typhoid fever, nutrition and infant feeding, hemolysis, tumors. To judge by this volume, the series for 1902 will not fall short of those of the other three years. We know of no better review of actual medical progress.

*A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 452 pages, five illustrations. Per volume, $2.50, by express prepaid to any address. Per annum, in four cloth-bound volumes, $10.00. Lee Brothers & Company, Philadelphia and New York.

PRACTICAL MEDICINE.*

THE second volume of the "Practical Medical Series on General Medicine" has appeared, and completes in a most satisfactory manner the review of the medical literature of the year. The abstracts are of sufficient length to present the views of the authors in an intelligible manner. Much of importance has been written on typhoid fever, malaria, yellow fever, et cetera, and the diseases of the gastrointestinal tract. The general practitioner will find these volumes of inestimable value if he be at all desirous of keeping abreast of medical times. In them will be found many practical suggestions along therapeutic, diagnostic and prognostic lines. The internist will find in these volumes the latest and best literature, well arranged for reference. It has been the custom with many practitioners to have their medical journals bound. The practical medical series obviates the necessity of this expensive procedure, and at the same time furnishes a classified literature. The physician who is working up the literature of a subject for publication will find the best references of recent articles in these volumes, and can thus obtain the original in text if he desires more than a good abstract. For the majority of physicians who are without the advantages of a large medical library these volumes furnish a good substitute for such works as the Index Medicus. I cannot speak too highly of this series of publications. J. R. A.

*By Frank Billings, M. S., M. D. The Year Book Publishers, Chicago.

MANUAL OF CHILDBED NURSING.*

The fifth edition of this work has just been issued, as a twelvemo volume of seventy-five pages with a glossary. Though intended primarily for nurses, this work might well be in the hands of every general practician of medicine. The various problems of the lying-in chamber, and of the puerperium are concisely but thoroughly discussed. The suggestions as to aseptic technique, and the chapter on infant feeding are especially valuable. T. S. B.

*With Notes on Infant Feeding. By Charles Jewett, A. M., M. D., Sc. D., Professor of Obstetrics and Diseases of Women in the Long Island College Hospital. Price, 80 cents. New York: E. B. Treat & Company, 241–243 West Twenty-third street.

GYNECOLOGICAL PATHOLOGY.*

It has been for a number of years a matter of surprise that American gynecologists with their great advance in the operative field have apparently paid so little attention to the development of gynecological pathology that up to the present time no work dealing exclusively with this important branch of diagnosis has appeared on this side of the Atlantic. In Germany during the last six years not only has Abel's work reached the second edition, but the valuable contributions to this field by Winter, Amann and Gebhard have appeared. In France at least two works of similar nature have appeared during the past several years. Of the German works the Abel, though the pioneer, is not the best, any one of the three above mentioned possessing certain advantages over it. The illustrations are too few, many badly chosen and in both original and translation are poorly executed. A very good chapter on embryology and on the origin of growths from embryonal cells and organs has been added by the translator. Otherwise the original plan has been followed in the translation: Part I, dealing with technique; Part II with the normal and pathological anatomy of the vulva, vagina, cervix, uterus, tubes and ovaries: Especial attention is given to the differential diagnosis of carcinoma of the cervix and endometrium. Inasmuch as this is the only work at the present time accessible to the reader of English the translation of the work fills a want which has been very marked in the case of the students and postgraduates who take the courses in gynecological pathology now offered at a number of our leading medical schools.

*A Manual of Microscopic Technique and Diagnosis in Gynecological Practice for Students and Physicians. By Doctor Carl Abel, Privat-Docent, Berlin. Translated and edited by Samuel Wyllis Bandler, M. D., Adjunct Gynecologist to Beth-Israel Hospital, New York, with a chapter on the embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures. Illustrated by one hundred engravings. New York: William Wood & Company, 1901.

AN AMERICAN TEXT-BOOK OF PATHOLOGY.*

THE present volume is, according to the preface, the outcome of a desire on the part of the editors and publishers to place in the hands of medical students and physicians a comprehensive text-book upon the essential principles and facts in General Pathology and Pathologic Anatomy. The work is divided into two parts, the first one treating of general pathology, the second part devoted to special pathology. It will be noted that only about one-third of the volume is given up to the first part, and this brevity of treatment of general pathology is the most apparent defect of the work. There are nineteen contributors to the volume, nearly half of these coming from the Middle West, and nearly all belonging to the younger school of American pathologists, distinguished for the chief part by recent research work. There is, however, in the writer's mind a very serious doubt as to the value of American text-books in general, that is, of text-books consisting of chapters contributed by different men. It is impossible to give to such a work the unity of either style, thought or treatment which is essential to a really serviceable text-book. No matter what freedom may be left to a contributor to such a work the exigencies of editor and publisher are always such as to hamper individuality. From such exigencies the volume under consideration has suffered much, though it is undoubtedly the most successful of all the American Text-books or Systems with respect to the escaping of this danger. But the chief value of the work must nevertheless lie in its utility as a book of reference rather than as a text-book, and as the former the editors are to be congratulated upon their really valuable addition to pathological literature. The majority of the chapters show little or none of the usual hack style, and an immense amount of pathological knowledge is opened up to that great mass of American readers who are dependent upon the English language alone. The omission of the complete bibliography of each subject and the very poor illustrations are serious defects which are most probably to be laid at the door of the publisher rather than of the editors or contributors. Otherwise, the book is well printed and shows a surprisingly small number of errors.

*Edited by Ludwig Hektoen, M. D., and David Riesman, M. D. Illustrated. Philadelphia and London: W. B. Saunders & Company, 1901.

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ORIGINAL ARTICLES.

MEMOIRS.

BOTH SIDES OF THE PERSONAL INJURY QUESTION.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN taking up the consideration of what are variously termed "damage cases," "negligence cases," and "personal injury cases," we are entering upon a subject which is but little known to the general public, but which is very well, and, in some respects, unfavorably, known to court lawyers, physicians and litigants. Probably no department of civil court practice, at the present time, is considered and discussed with such bitter feeling as this, and, perhaps, in no other branch of civil jurisprudence are such sweeping charges of fraud, and such wholesale charges of dishonesty, and even perjury, so generally and persistently made as in this. Some of these charges have, from time to time, found their way into the newspapers, and the general public have thus heard some faint echoes of the bitter feeling which prevails; but no one, whose duties do not bring him into actual contact with the situation on one side or the other, can have a fair idea of the deep feeling underlying the charges and claims of merit on both sides. For this reason, it has seemed to me that a fair treatment of the subject from the standpoint of both the plaintiff and the defendant—the claimant and the one against whom the claim is made—would be of interest to the members of the medical profession (whose duties so frequently call them, both to the bedside of the patient, and to the court where that patient's claims are being treated), and for this reason, I very gladly accepted the invitation of your President to read a paper upon "Both Sides of the Personal Injury Question."

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*Read before the WAYNE COUNTY (Detroit) MEDICAL SOCIETY.

I shall endeavor to consider the question fairly and dispassionately. Of course, one's opinions and prejudices are biased by the circumstances and environments of his daily walk in life. The attorney whose business it is mostly to prosecute personal injury claims will feel that the frauds, if any there be, are committed by the persons, firms, or corporations, against whom those claims are made, while those attorneys or corporations whose duty it is to resist such claims, are very apt to look upon all of them as false and fraudulent, and a legitimate effort to collect them as dishonest practice. I believe, however, that I am so situated as to be able to give fairly impartial consideration to the question; for, while I have prosecuted many personal injury claims on behalf of the plaintiff, and hope to prosecute many more, I have also resisted a great many such claims on behalf of the defendant, and I hope to be retained to resist a great many more.

An impartial observer, who has an opportunity to observe the manner in which such claims are prosecuted at the present time, will not hesitate to admit that great injustice and hardship, many unfortunate wrongs, and much fraud, and even crime, occurs, both in the prosecution and the defense of personal injury cases. In very many cases, claims are defeated which should have succeeded, and in very many more, verdicts have been obtained for the plaintiff which were an outrage upon public justice. We shall endeavor to show, first from one standpoint, and then from the other, what some of those abuses are, and then, if possible, to suggest a remedy. We cannot hope that such a paper as this, treated in this manner, will achieve popularity, because no criticism, however just, is apt to please the persons criticised, and we expect to make criticisms on both sides of the question before we get through. If, however, we shall succeed in calling attention to some abuses, and so stir the thought of the intelligent and honorable members of this influential profession, we believe that we may accomplish at least some small amount of good, and with that we shall be more than satisfied.

THE GREAT GROWTH OF PERSONAL INJURY CASES.

The rapid growth of damage claims for personal injuries within the last quarter of a century, and, still more strikingly, within the last decade, has been so remarkable as to challenge the attention of both the medicaland the legal professions. This growth is peculiar to no part of the country, but is widespread and general. It is the inevitable result of the growing concentration of population in cities, with the complex life, the massing of machinery, the rush of travel in crowded streets, the development of rapid transit, and the multiplied and multiform dangers which a complex civilization always carries in its train. It is impossible, therefore, to make any definite comparison, in this respect, between different portions of the country, except to say that the older and more densely populated the district, the greater is the development. For the sake, however, of procuring figures to illustrate the existing situation, and what it promises to become, we may, with profit, take the records of the Chicago courts, having jurisdiction of these cases, and of the Courts of Appeal throughout the State of Illinois, together with a few recent figures from the courts of this county and state.

The first fact shown from the records of the Chicago courts is, that there is a steady increase in the number and size of these suits. In 1875, there were, altogether, about two hundred personal injury cases pending in Cook county. During the first six months of 1890, the number of these suits brought in Cook county was three hundred forty-six, the amount of damages claimed being $2,814,860. During the corresponding six months of 1896, the number of such suits in Cook county was eight hundred ninety-three, and the total amount of damages claimed was $13,510,000. It would not be unreasonable to assume, from these figures, that there are now pending in Cook county four thousand of these cases, and that the damages claimed are between fifty and sixty millions of dollars.

In this county the docket for the January term, 1902, of the Wayne Circuit Court, shows that out of six hundred forty-nine law cases for trial by jury, one hundred fifty-two are personal injury suits, the aggregate amount of damages claimed in which are $1,747,800.

So much for the claims which are in suit. Every one, who is experienced in these matters, knows that the first effort, both of plaintiffs and of defendants, in treating these claims is to compromise, if possible. For each claim which is brought to suit, it is probable that eight or ten claims are settled without suit. Of course, statistics as to these settlements cannot be procured, except in a very meagre way, but we are safe in believing that the figures which we get from the records of the courts as to the numbers of these claims, large as they are, tell not more than half, and probably only a small part of the story.

The second conspicuous fact disclosed by the records of the trial courts of Cook county, is that there has been a rapid increase in the size of the verdicts rendered. I do not believe that the same increase can be shown in this county and elsewhere, outside of a few large cities, for reasons which will be hereafter referred to. During the first six months of 1890, three verdicts were rendered in the courts of Cook county, of $10,000 each, or over. The sum of these three verdicts amounted to $35,240. During the first six months of 1896, twenty-six verdicts were rendered in these courts, each for an amount equal to, or exceeding $10,000. The sum of the twenty-six verdicts amounted to $425,000. The same scale of increase which applies to these large verdicts, applies also to the smaller verdicts.

Selecting, for purposes of convenience, six of the prominent railroad companies in Chicago, which have most trouble of this sort to meet, we find that, in 1890, these companies, taken together, lost but four verdicts, the sum of the four verdicts being $5,550. During the first six months of 1896, the same railroad companies lost sixteen verdicts, the sum of these verdicts being $143,500.

Other figures illustrating the same tendency are found in the experience of many other Chicago railroads and street railroads. In the first six months of 1890, the three most prominent street railways in Chicago, lost five verdicts, the sum of these verdicts being $10,050. During the first six months of 1896, the same companies lost twenty-eight verdicts, of which the total amount was $124,012.

It is not long since a verdict for $10,000 in Chicago was almost unknown; and, when one of the earlier of these verdicts reached the Supreme Court of Illinois, in 1875, it was promptly reversed. In commenting upon the amount of the judgment, the Court said: "Ten thousand dollars is a very large sum of money, in the possession of which very few can boast. It is a small fortune, which few acquire in a lifetime in incessant labor. This the jury awarded to one whose prospects in life do not extend beyond his wages as a day laborer, and who has not been, by the negligence of the defendants, wholly disabled. It is true the company was at fault, but not so greatly as to aggravate it to wilfullness. Compensatory damages were all the jury were justified in awarding under the evidence. A verdict for $10,000 is so enormous as to justify the inference that the jury were actuated by prejudice and passion, not listening to the dictates of cool judgment."

Matters have changed in Chicago in this respect since 1875, and over there, at the present time, $10,000 is, by no means, a large verdict. The amounts given by juries in Cook county now run as high as $50,000 and upward. Forty thousand dollars have been reached in a number of instances, and verdicts for $20,000 and $30,000 are of frequent occurrence.

The same is true of verdicts in Philadelphia, New York and Boston. I doubt not that many of you have read of a case which BENJAMIN BUTLER prosecuted in Philadelphia for a boy who lost his leg in a railroad accident. Being unable to get a satisfactory settlement, he sued the railroad company, placing his damages at $25,000. He obtained a verdict for $15,000, which the Court promptly set aside as excessive. On the second trial he obtained a verdict for $25,000, which was again promptly set aside as excessive. Not dismayed by the successive interferences of the Court, the doughty BENJAMIN moved for leave to increase, what we lawyers call his ad damnun clause, that is, the amount of damages which he claimed, to $50,000, and this motion being allowed, on the third trial he recovered $40,000, which was again set aside, whereupon, BENJAMIN, by no means daunted, moved to increase his ad damnum clause to $75,000. The case was settled for a good figure by the Company before it was tried for the fourth time.

Another conspicuous fact, which was formerly almost a general rule, but which is now changing, as we shall hereafter see, is, that formerly, at least, the defendant stood very little show before a jury. I shall illustrate this fact by a few figures, although it will be scarcely necessary to make such an illustration to lawyers in active practice, as it had become almost axiomatic, that, if a case of this character should be submitted to the jury, a verdict would certainly be rendered for the plaintiff, and the chief concern of attorneys for the plaintiff, was, formerly not so much that they should convince the jury—that being taken for granted—as that they should "get past the Judge." This tendency may be illustrated by some figures which I have taken from a very interesting article by E. PARMALEE PRENTICE, upon the state of affairs in Chicago and Cook county, from which it appears that one hundred and seventeen personal injury cases were decided by juries in courts of Cook county during the first six months of 1896, and of these one hundred and seventeen, one hundred were decided in favor of the plaintiff. Of cases which lasted one day, there were twenty-six, of which eighteen resulted in the plaintiff's favor; twenty-eight cases lasted two days, twenty-six resulting for the plaintiff; twenty-one cases lasted three days, twenty resulting for the plaintiff; thirteen cases lasted four days, nine resulting for the plaintiff; nine cases lasted five days, eight resulting for the plaintiff; six cases lasted seven days, all six resulting for the plaintiff; four cases lasted nine days, three resulting for the plaintiff; one case lasting thirteen days, and that also was won by the plaintiff.

In order to make plain the great value to either side of a favorable verdict, it may be proper for me to say, that the Appellate Courts, theoretically, at least, do not disturb the findings of the jury upon questions of fact, unless the trial court committed some error in submitting the question to the jury. This tendency of the jury, which formerly existed in favor of the plaintiff, had a value which it would be hard to estimate, as no matter how severely the Appellate Courts should criticise the verdicts, they have generally affirmed these verdicts, unless the Court committed some error in submitting the question to the jury.

The action of the Appellate Courts, four or five years ago, may be thus illustrated. An examination of five volumes of the reports of the Appellate Court of Illinois of six years ago, shows that one hundred and twelve personal injury cases were reported, of which ninety-four were appealed by the defendant, and only eighteen by the plaintiff. In eight cases out of eighteen, the plaintiff was successful in the Appellate Court, an average of pretty nearly fifty per cent, while the defendant succeeded in thirty-two cases out of ninety-four, an average of thirty-three per cent. Similar results may be obtained from an examination of the "Supreme Court Reports" of Kansas, Texas, New York, and other states.

Up to a short time ago, at least, the facts and figures which I have heretofore stated, show, in the first place, that a claim for personal injuries has been practically sure to result in favor of the claimant; in the second place, that the damages given by the jury, at least, in other jurisdictions than this, will be large; and, in the third place, that the Appellate and Supreme Courts of Illinois, Kansas, Texas and New York, at least, are far more to be feared by the defendant than by the plaintiff. It will, therefore, readily be seen that the personal injury problem is a serious one. Let us consider it first from the standpoint of the defendant.

FROM THE STANDPOINT OF THE DEFENDANT.

The large figures already quoted show that the element of personal injury suits must become a very important financial factor in every important manufacturing enterprise. Business is done nowadays on small margins; every element of cost and expense is rigidly examined; and calculations are so close that large amounts like those claimed at the commencement of suit, must be a very disturbing factor. If the amounts claimed at the commencement of suit, represented substantially the amount of damages awarded, most of the large and important industries would be put out of business. No corporation could stand such a strain.

However, it must be understood that it is a far cry from the large amount claimed to the much smaller amount usually awarded. In looking over the records of the Wayne Circuit Court for statistics in connection with this paper, I saw one suit where $100,000 was claimed for a comparatively trifling injury, the damages awarded for which cannot possibly exceed $1,000. It will, therefore, be seen that the large size of the damages claimed on starting suit, need not necessarily scare any financial institution out of business, the chief point being how much they have actually to pay.

Again, it may be plainly stated that the prosecution of personal injury suits has grown to be a business by itself. Many attorneys and persons engaged in it have scarcely any other occupation. In Chicago and other large cities, there are several corporations, and many law firms and brokers, who do a speculative business in these claims. They employ runners, or "snitches," as a commercial house employs traveling salesmen. These runners have business relations with saloon-keepers near manufacturing works and railroad crossings, and surgeons and police officers may be found, in various parts of these cities, who are connected with this business. Sooner or later, the runners succeed in obtaining admission to every public hospital in the county. It rarely happens that an accident is mentioned in the newspapers, but the unfortunate person who is injured, or his family, in case of his death, is at once overrun with applicants, who desire to procure his claim for prosecution. A claim of this nature is personal property and may be assigned, and the experienced "snitch" generally obtains a transfer or assignment, either to himself or to some other person, as trustee. This trustee represents the runner, or "snitch," the saloon-keeper and the hospital nurse, or other person, through whom he may have procured the claim. The attorney, surgeons and other witnesses who may be called upon to testify, will also have a right to share in the proceeds, and last, and generally least, comes the injured person for his small share in the proceeds.

Such a system as this is fraudulent throughout, for it is an imposition both upon the plaintiff and the defendant. Not only is it a manifest imposition upon the defendant, but it is also an imposition on the plaintiff, because it offers a direct inducement to the persons into whose hands he has fallen, and who are interested merely in the pecuniary speculation, either to hold out for an extortionate settlement, thus forcing the claim into court when a fair settlement might have been obtained amicably, or, on the other hand, the prosecutor of the claim may very likely be forced by his own personal pecuniary necessities to grasp at an immediate settlement, and in order to obtain it, force a settlement for far less than the victim ought to accept. Again, when the victim is in the hands of dishonest surgeons (and I will say to you, in confidence, that, outside of the city of Detroit, there are a few dishonest surgeons), it has not infrequently happened that the symptoms of the injured person have been positively aggravated in order to promote the financial interests of the persons interested in the claim. To illustrate this, one instance, alone, will be necessary, in which the person who was injured was treated by the surgeon of the corporation in whose employ he had been. The injury was a serious one. The man was in the Company's hospital, and was doing well, when a runner got hold of the injured man's wife and urged his removal from the Company's hospital. The surgeons who were in charge of the case stated to the runner and to the woman that the removal would be exceedingly dangerous, and probably fatal. The runner, however, was not satisfied, and shortly afterward succeeded by his persuasions in bringing the wife back, and persisting in the demand for a removal, finally accomplishing it, with the immediate result feared by the Company's surgeons. This, of course, was a plain case of murder, and was unusual, but cases wherein an injured person is attended with a view to testimony, and not to treatment, are frequent. Unnecessary amputations or other operations cannot be proved, but there are persons acquainted with the course of matters, who believe that they are not unknown.

The great danger to the defendants is dishonesty and fraud on the part of the "snitches," dishonesty and fraud on the part of the lawyers, dishonesty and fraud on the part of the claimants, and dishonesty and fraud, even on the part of the physicians and expert witnesses.

Many a claim is presented which is fictitious throughout. A person physically defective, or capable of counterfeiting physical defect, may be made into a claimant with proper instruction, which interested parties are always ready to give. Such cases are constantly coming to light. Four or five years ago, a railway company discovered evidence which showed that a mother and several daughters had been living upon the proceeds of these claims for a number of years. The list of claims which had been presented by them was astonishing, and the discovery of the conspiracy was largely accidental. Another corporation, involved in this litigation, was presented with a person, apparently an idiot, his condition being represented as the result of a blow upon the head. The Company's attorney took the precaution of having his picture taken. No record of the accident could be found; and, after the man had left the attorney's office, even he could not be found. The picture, however, was sent to all parts of this country and Europe, where information might be expected; detectives were employed in mines in Montana, and in cities on the Atlantic coast, with the final result that the defendant's attorney learned of the man's birthplace in Europe, discovered his name on the army register with the record of his physical examination, showing that his condition as a youth had been the same as it was when he was presented as a claimant. Correspondence between his confederates was intercepted in Hungary, and, finally, his original transport was recovered from his family, showing that he had first come to America six months after the date of the alleged accident of which he complained.

In our own city, most of us are doubtless familiar with a certain suit which was brought against the City of Detroit for rupture claimed to have been suffered as the result of a fall upon a defective sidewalk, but which the city succeeded in showing, by testimony from Europe, the claimant sustained when he was a boy. Most of us are also familiar with the recent discovery of two men, one of whom made it a business to fall from street cars in motion, and to claim to have sustained injuries, for which remunerative settlements were generally obtained.

Then, again, although I am in the presence of a representative body of physicians, I must say that many so-called medical experts frequently become parties to a conspiracy to misrepresent and successfully maintain large claims for personal injuries, which, in reality, were never sustained; and they are always smart enough to select the class of cases in which their fraud and perjury cannot be successfully detected and punished. So many of these claims are for injuries to the nervous system, of such a character as to present no objective symptoms, so many of them must depend upon subjective symptoms alone, that it is a very easy matter for an unscrupulous physician to coach his equally unscrupulous client as to the subjective symptoms which are necessary for the successful maintenance of his claim; and, after the claimant has testified as to the symptoms about which he has been so carefully drilled it is very easy for the dishonest expert to testify as to the cause, the result, and the prognosis of such subjective symptoms. In every case he will swear that the cause was probably the injury complained of; in every case he will swear that the prognosis will be that of permanent disability; in very few cases will he actually believe that the claimant is really suffering from the injury complained of, yet his testimony is the vital element of the claimant's case —the necessary foundation upon which many an outrageous verdict has been based.

Of course, no railway, manufacturing firm, or corporation can long withstand such assaults as these, when they meet with public approval and the support of the Courts, and many corporations, acting upon the devil's own maxim, about "fighting the devil with fire," have begun certain practices which are just as fraudulent as the fraud practiced upon them, and wherein the injury caused has been just as hurtful to the other side.

Let us, therefore, examine for a moment, the case

FOR THE PLAINTIFF.

At the present time, nearly every large railroad has a well equipped claim department, whose first duty it is, as soon as an accident is reported, to obtain a settlement of all claims for a trifling sum. The surgeons are called in to help in this nefarious practice, and, while the poor patient is racked with pain and scarcely conscious of what he is doing, a small sum of ready money is flashed before his eyes, the extent of his injuries are minimized to him, and for a few paltry dollars, he is induced to sign a full release for the injury, which should be compensated with thousands.

This is just as great a fraud as any of those practiced by the claimants. If a person is injured by the negligence of another, or of the agent of another, he is entitled to full and adequate compensation for all of the injuries so sustained, and any artifice, trick or device by which he is thrown off his guard and induced to accept a smaller sum than that to which he is entitled is wrongful and fraudulent, and should not stand.

The Courts have, in certain cases, set these settlements aside, but, in many cases, nothing more is heard of them. A fair illustration of this practice of immediate settlement is that reported of the recent wreck upon the Wabash Railroad at Seneca, in which, if newspaper reports are true, death claims and claims for serious personal injuries were settled for $50 or $100.

Again, the interests of many claimants of damages for personal injuries, are seriously injured by the ignorance or incompetence of those prosecuting them. The law governing these personal injury claims is extremely complicated. The high-priced and skillful attorneys of railway and other corporations, who have defended these claims for so many years, have raised every possible question upon every conceivable theory of the law, and the decisions upon these questions, made by the courts of last resort, form a body of law which it requires trained skill and vast research to thoroughly comprehend. The tyro, therefore, has no business to handle these claims as attorney for the plaintiff. The railroad companies do not select a new man for each case which is presented to them. On the contrary, they select the best men they can get, and pay them large salaries to devote their entire time and attention to the business of defending the interests of the railways which employ them. The defendant is, therefore, represented by an expert attorney, and the plaintiff's interests can only receive adequate representation when they are also placed in the hands of an expert.

Then, too, personal injury claims lie in the domain of medical facts and experience; and, no matter how well skilled the attorney for the plaintiff may be in the principles of the law bearing upon his client's case, it will be impossible for him to adequately represent his client's interests unless he knows the medical situation of his case. This is not peculiar of medicolegal cases, but is true of every case the lawyer tries. He cannot properly handle a horse case, unless he makes himself familiar with the peculiarities of the horse which is involved in the case at bar; nor can he try a case based upon a contract for the building of a house unless he is thoroughly informed about the peculiarities of house construction and carpenter work involved in the case at hand. Not only great legal experience, but also a complete and adequate knowledge of those parts of the human frame involved in the injury to his client, together with the causes and results, or possible causes and results, of the pathological symptoms involved is absolutely necessary for the plaintiff's attorney to properly present his client's case. Great injustice is frequently done to deserving claimants by reason of this very ignorance of the attorney; and, like the famous mistakes of the physicians, which are always buried, the attorney makes these mistakes in such a way that public attention is not called to them, and, more frequently than not, he escapes censure for them, although his client's interests are none the less sacrificed. This may be illustrated by one or two cases out of my own experience.

I remember one case wherein the claim was presented to the Committee on Claims of the Common Council, of a woman who was suffering from traumatic neurasthenia, as the result of a fall upon a defective sidewalk. Her attorney happened to be fairly well informed about the disease, its causes, symptoms and progress, and he had a well informed medical expert as a witness. The claim was presented to the Committee in a clear and graphic manner. The cause of the disease was clearly traced to the injury. The anatomy of the parts was clearly explained, a few long names were thrown into the description, from time to time, and the Committee awarded the claimant $700, which was gladly accepted.

The very next week, I happened to be before the Committee, and I heard another claim presented, which, from its symptoms I recognized as almost identical with the previous claim. The attorney seemed to know very little about the medical side of the case, and the attending physician did not seem to have the faculty of describing anything. The net result of the testimony, therefore, was, that the woman was "severely injured internally'" and, with that concise and inadequate description of her injuries, the claim was submitted only to be refused by the Committee. Had the claim been properly presented, I have no doubt she would have received as much as, if not more than, the lady first mentioned.

I also remember another case—of coccygodynia,—wherein the lower end of the coccyx had been fractured, and two-thirds of it had been removed. The defendant was represented by one of the most skillful attorneys at the Detroit bar, but he did not know very much about medical science. While the plaintiff was on the stand, she described with great particularity, under the guidance of her counsel, the sharp cutting pains in the back which she claimed to have suffered. The attorney for the defense, in cross-examining her, endeavored to find out something about the length of time she was in the hospital after the operation in which the portion of the coccyx was removed, and he asked her this question, "How long were you in the hospital?" She was evidently flustered and embarrassed for she made this random answer, "Well, there was that disease I got from my husband." The attorney for the defense asked her, "A venereal disease?" to which she replied, "Yes." The attorney for the defense allowed the matter to rest right there, but I need not indicate to the skillful physicians here present how strong a point he might have made by following up her admission, and connecting the cutting pains in the back with it.

Again, following out the nefarious practice of "fighting the devil with fire," some corporations who have to deal largely with the personal injury problem have descended to even fraud and crime in order to achieve success. They proceed upon the theory that all personal injury claims are fraudulent, and those who prosecute them are blackmailers, and acting upon the principle that the end justifies the means, they are beginning to adopt methods which will, before long, result in trouble for them, or those who uphold them, and fail to prosecute them. Of course, these practices have not sprung up in a night, but have been gradually developing. They began by retaining detectives to get up testimony for their defense—a very proper and legitimate practice.

Persons engaged in the spying business are, of course, not always the salt of the earth, and these detectives have frequently resorted to practices which are finally becoming a part of the settled practice of certain large corporations, who have to deal frequently with the personal injury problem. At the present time, I could name to you certain courts in this country wherein a trained force of men in the employ of certain large corporations resisting personal injury claims, are constantly at work upon the jurors from the time when their names are first drawn from the box by the jury commissioners and placed upon the panel for the term, to the time when the last personal injury case on the docket for the term has been tried. Any and every means of ingratiation is used, from the cheery, jovial "good-morning" as the jurors file into court, and the pleasant greeting and jolly story during the time of the jury's recess, down to the criminal process of outright bribery. Each juror is carefully looked up. His character, associations, antecedents, susceptibility to bribery, et cetera, are all carefully noted. The weaknesses of every man are ascertained, and, very early in the term, the man who is looking after the jury, knows just what he can do with each juror. Perhaps they always keep closely within the letter of the law, and make no direct promises, but many indirect hints. Frequently, however, they do not. And nowadays, in certain courts, it is a noticeable fact, that while the plaintiffs may obtain a few verdicts at the commencement of the term, the time very soon arrives in the term when the plaintiffs in these cases can expect little else than a disagreement, and they generally lose their cases before the jury. In these Courts it is also noticeable, that, almost immediately after the juries are discharged for the term, a number of the former jurors, who, by a curious coincidence were most stead-fast in rendering verdicts for certain corporations, turn up in the employ of those very corporations.

Now, this indicates positive crime, the continuance of which will poison the springs of justice. Many other abuses could be cited, had I the time to do so, but, in the glaring light of this stupendous outrage, all the others pale into insignificance. The one great factor in substituting "government by right" for the old time barbarous "government by might," was the institution of unbiased, impartial courts, to which, both parties to a controversy, felt that they might, with safety, submit their respective claims, and be assured of honest, impartial decisions upon them. The moment this theory of absolute impartiality, on the part of either Judge or jury, is subverted, that moment trouble begins. Crimes of this kind can scarcely be looked for on the part of the plaintiff, because the same man seldom has more than one personal injury suit in his lifetime, and there is no necessity for such a system upon his part. But if one defendant corporation is permitted to purchase juries with impunity, it will not be long before other corporations, in like circumstances, with like means of corruption, and like unscrupulousness, will attempt the same thing, and the results will be burlesques and travesties upon justice, which can have no other ultimate result than revolution.

THE REMEDY.

For all these wrongs, I can conceive of but one adequate, practical remedy, and that is absolute honesty, either subjective or objective, as you physicians would term it. If litigants will not be honest of their own accord, which may be termed "subjective honesty," they must be made to be honest, which may fairly be termed "objective honesty." The Courts of the country, especially those wherein the judiciary and prosecuting officers are elective, are altogether too lax in their enforcement of the law. Perjury and subornation of perjury, are frequently hinted at, and often openly charged; but too many courts and prosecutors hear such charges only with feeble and deprecating smiles. Jurors frequently act in such a manner as to openly indicate that they have been corruptly biased, but the judges, too intent upon currying favor with these political lords of their respective manors, take no heed of the damning indications. So-called expert witnesses frequently testify in such a manner as to convince nearly every one who hears them that they are not telling the truth, but their testimony goes unrebuked, either publicly or privately. Lay witnesses, both for the plaintiff and the defendant, frequently commit open and flagrant perjury, but nothing is heard of it thereafter, except a few caustic criticisms on the part of the opposing attorney, which frequently fall unheeded. What we need, in this, as well as in so many other departments of the public service, is an awakened public conscience, keen to note and swift to punish fraud and wrong wherever it may be seen.

POSTMORTEM FROM THE MEDICOLEGAL STANDPOINT.*

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THE primary object in making a postmortem varies according to the subject in hand or the results sought to be obtained. It may be for the purpose of either verifying a diagnosis or to study lesions where diagnosis has been obscure, doubtful or entirely lacking; or it may be made for the purpose of determining whether a person died a natural or a violent death. It is with the latter class of postmortems that this paper will deal as it is only in suspected cases that the medicolegal man is liable to be called upon.

From a strictly medicolegal standpoint the examination by the medical man not only includes, as it does in most instances, a thorough and careful examination of the recently deceased body, with studied precaution for the preservation of the different viscera for the examination by the chemist later, but it also embraces researches and investigations of a far different nature.

It is comparatively an easy task for the modern surgeon to arrive at a reasonable conclusion as to the cause of death if death has resulted from violence exerted without the body, and in case of the more subtle and insidious method by poisoning, if he take charge before the undertaker with his embalming fluid can entirely subvert justice and render utterly impotent any effort at detection in that direction, it also becomes a comparatively simple task for the chemist to form a decided opinion as to whether poison existed in sufficient quantities in the body to cause death; though so far as the crime itself is concerned, if the poison was administered with intent to murder, it is not necessary there should be enough in the article administered to cause death.

It might be asked would the fact that an embalming fluid, the poisonous constituents of which are known, injected into the body, completely shield or disguise the presence of other poisons that to a reasonable man could only have been introduced into the system apart from the poisonous embalming fluid?

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*Read before the DETROIT MEDICAL SOCIETY.

It would not make much difference whether the embalming fluid contained one or several poisons, the mere fact that a fluid containing well-known poisons had been injected after death and before the postmortem chemists could proceed is a sufficiently powerful weapon in the hands of a skillful cross-examiner and gives him the opportunity to create in the minds of a lay jury a "reasonable doubt," no matter how perfect or how many the reactions showing to the trained mind the presence of another poison not contained in the fluid.

I say "reasonable doubt" because it is behind this rampart that many a murderer has found total immunity and protection against the law. In the criminal procedure of the land there is perhaps no more common phrase used by the courts in their instructions to juries having the fate of alleged malfactors in hand than this phrase, "reasonable doubt." "You must be convinced beyond a 'reasonable doubt,'" say all the courts, "or your verdict must be 'not guilty.'" There is no instruction from the court that is so vital to the interest of the accused as this, and yet none so easily misunderstood or misapplied.

"A reasonable doubt," say our Supreme Court in the case of the People versus Finley, 38 Michigan, 482, in adopting the instructions of the trial judge as one of the clearest and most sensible definitions they have ever seen, "is a fair doubt growing out of the testimony in the case; it is not a mere imaginary, captious or possible doubt but a fair doubt based upon reason and common sense; it is such a doubt as may leave your minds after a careful examination of all the evidence in a case in that condition that you have an abiding conviction to a moral certainty of the truth of the charge made against the respondent;" and again in the case of the People versus McGuire, 44 Michigan, 286, the late JUSTICE CAMPBELL in his decision said that if the jury understood English they could get little aid from any closer definition of "reasonable doubt" than the one given by the trial judge, "that the expression itself seems to comprehend the whole subject matter." Reasonable doubt, of course not a far fetched one; it is not a speculative one; it is not an arbitrary one; but it is just what it assumes to be, a 'reasonable doubt.' If you, after looking over the testimony and considering all the facts proven to your satisfaction in the case and the natural circumstances that surround those facts, are still unable to say that the prisoner is guilty it is your duty to acquit. And that we apprehend is what is understood by a reasonable doubt in the law."

Knowing then how frail is human reasoning even in the face of the clearest and most explicit instructions as exemplified in the deliberations of modern juries it behooves the postmortem surgeon to take every precaution and surround his work with every safeguard to prevent upon the trial of an accused, the slightest irregularity or carelessness in his postmortem examination to be taken advantage of by counsel to become a weapon in his hands thereby to raise a "reasonable doubt" in the minds of the jury, however unreasonable that doubt may appear to him. It is not an uncommon thing to find justice very often cheated through the incompetency and to my mind its equivalent, carelessness or indifference of the postmortem examiner. His duty to the community is just as plain, and his professional responsibility just as great to procure the best results for his work along that line as are the duties and responsibilities of the physician or surgeon to his patients in his daily practice in battling with disease. Work is never done unless well done.

What folly it would be, for instance in the postmortem surgeon to preserve only the alimentary canal, when in the case of rapid absorption or when the process of elimination has been active and speedy, perhaps not a single trace of the poison can be found, and allow the true evidence of the cause of death in the deeper seated organs and tissues to be buried with the subject or obliterated by the embalmer. Yet how often, even at the present time, do we hear of just such practices, but happily these are almost all confined now to the rural districts or places where a parsimonious Board of Supervisors will make no appropriation for competent investigation.

If the postmortem examiner be called to make an examination of the body where first found, he should make the closest and most minute examination and notes not only of the body, its position, location and garments and their contents, but of everything within and about the vicinity of the deceased. If the body be found in a house, the contents and condition of the room should be carefully noted, and if the body presents wounds the floors, walls, doors and windows thoroughly examined for blood stains, and foot and finger marks. The body should not only be measured, but also if possible weighed, and indeed every fact and detail that could directly or indirectly aid in determining the cause of death or lead to the arrest and conviction of a murderer should be recognized and recorded.

From the medicolegal standpoint the inspection by the medical examiner should include the number and character of the wounds, whether incised, penetrating or contused and if penetrating the direction and extent, which should be verified later by careful dissection, and he should not only satisfy himself that the wounds were the cause of death, but that the vital organs were healthy or at least not in such a condition that death could not be attributed to advanced disease of any of them. While the time of death can be arrived at only approximately, careful inspection should be made as to evidence of putrefactive changes, cadaveric lividity and rigor mortis, and the temperature of the body taken. The observance of these details help in arriving at an opinion as to the time when death took place, and in many cases particularly upon the examination of one suspected of murder, the probable time of death becomes a very vital issue.

In most of the larger centers of population, the necessity for thoroughness and care in making the postmortem and taking all due precautions for the preservation of the different viscera for chemical examination later, has become so impressed upon the criminal authorities that the official analyst has now become a very essential factor in all criminal investigations and proceedings. It would be better of course that the chemist be present at all autopsies so that there would be no break in the chain of evidence from the time of the first preparation of the body for the postmortem all through the various steps of investigation and analysis to the witness stand. When all the details for the careful preservation of the viscera are corroborated by another expert there is very little opportunity given the opposing counsel to open a breach whereby the accused might slip through. In this matter of evidence as in many others, the old rule of two heads being better than one holds good.

It would seem hardly necessary to say that all different viscera should be placed in absolutely clean jars with glass stoppers thoroughly parafined and sealed. In view of the most surprising possibilities and extended range of expert testimony nothing that can possibly create a chemical reaction should be allowed by any possibility to touch the contents.

In closing this part of my paper, I would say that from a purely medicolegal standpoint, no duty devolves upon the surgeon that is so simple and yet so onerous as the performance of careful, thorough and honest postmortem, for upon his integrity of purpose depends in the one instance the life or liberty of an accused, and upon the other the just and proper penalty that justice demands shall be meted out to a homicide.

So much, then, for the postmortem as we usually find it. It is rare that the medical man is called upon to give his opinion as to the cause of death excepting in the case of the recently deceased and when all organs and tissues are intact.

But there is another species that not only calls for the expert opinion as to the cause of death, but also whether the remains are those of the human or lower animal. I speak of those comparatively infrequent cases wherein through the long action of the elements either through long exposure of the body above ground or long interment or by recent incineration or by rapid corrosion and destruction of the softer tissues by powerful caustic solutions, leaving only detached or fragmentary portions of osseous structures. that have resisted the consuming processes, and which are the sole evidence of a death, for examination by the expert. In no class of expert testimony, is the opportunity afforded the sensational and Quixotic expert for a wonderful and diverse play of his peculiar and supposedly exceptional knowledge than in this very class. Men have been sentenced to life imprisonment and even death upon the flimsiest evidence that a crime had been committed at all, reinforced by the testimony of experts that certain exhibits were part of the human anatomy. I am not criticizing the expert that gives his testimony upon a complete exhibit, that neither time nor chemical action has made any appreciable impression upon, but I must raise a warning hand against the unqualified reception of the testimony of the expert, who with only a fragment of bone or with the partially consumed remains of several which, according to the theory of the prosecution, were all that remained of the body of a woman consumed in a superheated solution of caustic soda and potash, has the effrontery to say without reservation that those bones were not only sesamoid bones of a human being, but that the fragment of a temporal bone submitted was that of a woman.

Such was the testimony in the Leutgert case tried in Chicago in October, 1897, and disagreement had, and retried in February, 1898, and the big sausage maker convicted. While the general consensus of opinion was that Leutgert was guilty, to my mind no late case, excepting the Molineaux, has presented so many phases that would justify the application of the rule of "reasonable doubt" than this same case, for it must be borne in mind that reputable and unimpeached witnesses swore to having seen MRS. LEUTGERT after the alleged murder. The jury convicted LEUTGERT upon the strong circumstantial case made by the prosecution and the positive "cannot-be-mistaken" evidence of the experts for the prosecution, given with confidence and without reservation or condition, that the bones found in the vat were human and could not possibly have been anything else and time has since justified the verdict. These experts of course were in possession of all the strong circumstantial evidence relied upon by the prosecution, and undoubtedly were influenced in their opinion by that knowledge. From their standpoint the bones submitted could have been no other than human, but I deny that they could have arrived at the opinion by scientific research only. I believe the members of this society will agree with me and would hold in greater esteem the men and much greater respect the opinions of the experts for the defense, all men of recognized ability and long experience as anatomists, who when confronted with bones even of the human variety whose landmarks had been obliterated and asked to identify them would answer "I do not know."

Said one expert for the defense when handed a portion of rib and asked to identify it as human or not: "I could not positively place that bone in any animal to save my soul. It would require the most absolutely extravagant speculation to do so."

And said another when asked to commit himself as to a temporal bone: "I want something more than an isolated bone in order to positively state its probable nature and connection. While reasonably sure in my own mind as to the identity of the bones, I do not propose that in a case involving so much to say positively and without condition that these bones are what I think they are. I do not believe in off-hand guessing and before giving a positive opinion must have time for a thorough investigation."

Can there be any question in the minds of fair-minded men that these men were honest? With what greater credibility would their positive evidence be received in any subsequent case that they might be called in upon than would the evidence of the positive "cannot-be-mistaken" experts for the prosecution! And, too, their evidence would stand an infinitely greater chance to remain unshaken by even the most skillful cross examiner.

In a case involving expert evidence ot any kind it is invariably the over-confident, self-satisfied, cannot-be-mistaken expert, wholly ignorant of or at most having an imperfect or confused idea of the range and possibilities of a cross-examination, who is, figuratively speaking, "thrown down" hardest. In the Leutgert case he escaped.

I do not deny the possibility of the expert in comparative osteology, if given sufficient time to investigate, to positively assign to its proper place and connection any complete bone of the present known animal kingdom. I do deny, for it has yet to be demonstrated to me, that it is within human endeavor for any individual to possess and retain such wide, diversified and extremely technical knowledge that he can without considerable preparation and investigation approach even approximately the infallible in his testimony upon this subject. I am forced to this conclusion when we are constantly finding the greatest divergence of expert opinion upon apparently simple propositions. For instance, in the Leutgert case a bone conceded to be part of the femur of a hog was identified by one expert as the lower third and as positively identified by an equally reputable witness as the upper third. The expert for the prosecution not only identified certain bones as a temporal bone and part of a femur, but identified these same bones as belonging to a woman. Another expert swore as positively that the temporal bone submitted was artificial and that the femur was that of a hog. Another expert identified the skull of a dog as that of a monkey, and the femur of a gorilla as that of a large man.

It often becomes a matter for the medical expert in certain cases wherein he has made the postmortem and also in many instances wherein he has not even seen the body to give evidence as to the probable position of the alleged homicide relative to the deceased when the latter received his death blow; when in the case of a gunshot wound, whether the shot was fired close to or at a distance from the deceased or whether from the course of the wound the bullet was fired at an angle above or below the point of entrance; whether in the case of several wounds, each being supposedly mortal, the deceased could have made any hostile demonstration after receiving any one of them; or from the nature and locations of the wounds whether the deceased came to his death by suicide or assassination; or considering the location and nature of the wounds whether they were the cause of death or not.

I maintain that to answer any of these propositions positively and with certainty in all cases would in the language of the expert in the Leutgert case "require the most absolutely extravagant speculation to do so," excepting perhaps in the one single instance of powder marks or singeing of the hair which would denote close proximity of the firearm, although on the contrary we know that in many cases of comparatively close contact that neither singeing nor discoloration take place. The instances are too numerous and well authenticated in which the very opposite has occurred to what our judgment or experience would lead us to believe. The opinion of the expert is called for only, and it is left for the jury to give it the weight it is entitled to. But we know that physicians many times instead of giving their opinions, attempt too often, to give that weight to their testimony that should only be given to direct and incontrovertible evidence. Many take advantage of the respect and almost reverence in which medical attainment are generally held in the minds of the laity to advance the most preposterous and absurd opinions under the guise of expert testimony upon matters that the ordinary intelligent man is as well qualified to pass an opinion upon as themselves. For instance, a person alighting from a street car in motion—what part of his body would strike the pavement first? Where would he land relative to the tracks? I maintain that no man living can positively state, for in such accidents there are always certain forces in nature at play, and the working of varying degrees of those same forces depending on the particular exigencies of each case would make it impossible for any man to say positively just what the result would be upon a given state of facts. He might make a plausible guess.

Take again, for instance, a gunshot wound of the stomach and intestines. Would a man after receiving such wounds be able to commit such a violent assault upon his alleged slayer that the latter could show contusions and wounds thereby raising the question of reasonable doubt and plead justification? Ordinarily we would say "No." Yet the case of JAMES ELLIOTT, an ex-champion pugilist, killed in Chicago in 1883, furnishes an instance that would seem to set at defiance all logical conclusions or deductions that a lifetime's experience in the practice of medicine would teach. ELLIOTT was sitting in a restaurant one night with a friend, a celebrated oarsman, when another sporting man, between whom and ELLIOTT a feud of long standing existed, walked in and immediately opened fire upon ELLIOTT, several shots taking effect in the abdomen. ELLIOTT arose, closed upon his assailant threw him to the floor and succeeded in giving him a severe beating before being separated by people attracted by the noise of the shooting. The plain facts in the case seemed to point to deliberate murder, but on the theories built upon the later incidents of the fracas the assailant was justified and upon trial was acquitted.

Frequently the wounds and contusions though severe are only coincidence of death, and in the absence of a close and searching inspection of all the principal organs and cavities of the body might be attributed as the cause of death, whereas the cause may lie in another direction entirely and an apparent be mistaken for the real cause. TAYLOR cites the case of a girl who had died, while her father was chastising her for stealing, apparently from the effects of the violence. On the arms, shoulders and back many marks of blows were found and under some of them blood was effused in large quantity. The postmortem surgeon in this case, however, was clever and painstaking. Mere inspection was not sufficient for him to base his opinion upon and he proceeded to examine the cavities. On opening the stomach he found that organ much inflamed and lined with a white powder that proved to be arsenic. It turned out that on the theft being detected the girl had taken arsenic through fear of her father's anger. The expert imputed death to the arsenic and the father was properly acquitted of homicide.

Incidents are many in which a murder has been attempted to be concealed by creating an impression of suicide or accidental death, by inflicting wounds upon the dead body, and in many cases it has been only through the persistence and insistence of the postmortem examiner that the real cause of death has been accepted, and a suicide turned into a homicide.

Unless all marks of violence have been obliterated by long immersion in the water in a supposed case of drowning, or by extensive or complete destruction of the parts by the grinding and cutting of car wheels, the postmortem surgeon can with reasonable certainty state whether certain wounds were inflicted before or after death.

Many a homicide has been concealed in the coroner's verdict of "suicide by drowning" or "accidental death while asleep on the tracks" which proper care, prudence and above all competency of the postmortem examiner might have disclosed.

It occasionally happens, not freqently, that the postmortem surgeon is called upon to give his opinion upon the probable cause of death, or the sex after long interment where all the soft parts have disappeared and nothing but the skeleton or a few bones may have been discovered. In the absence of the bones of the skull and trunk it would be the height of recklessness on the part of the ordinary expert to pass any opinion as to the proable cause of death or sex. The probable age would be a matter that might be more plausibly and satisfactorily arrived at. But when the skeleton is found entire and in a fair state of preservation the question not only of sex, but also the probable cause of death if caused by fracture of the skull or extensive fracture of the bones of the thorax or pelvis might be reasonably arrived at. The question has several times arisen whether or not apparant fractures of the skull occurred before death or during exhumation. However, I know of no late cases in which this question arose, but all occurred during the time when medicolegal investigation and science were in that chaotic state that all sciences have had to pass through before time, study and experience have gathered and classified their accepted truths, and given them definite form and purpose.

The earliest noteworthy case, and the one in which the questions arising have since been amplified and enlarged until today they form a complete literature upon this species of postmortem examination, was that of EUGENE ARAM, the scholarly degenerate of the eighteen century, upon the remarkable incidents of whose life BULWER founded his romance of Eugene Aram, and HOOD his poem known to every English speaking school boy. ARAM in the year 1745 was implicated in a robbery with one CLARKE, but was acquitted for lack of proof. Shortly afterward CLARKE disappeared, and thirteen years later upon information given the police by the wife of ARAM, a skeleton with traces of a fracture and indentation of a temporal bone, was found in a cave at a place designated by one HOUSEMAN the alleged accomplice of ARAM. ARAM was placed on trial for the murder and declining the offer of counsel eloquently and ingeniously conducted his own case. He forcibly urged three points in his defense.

(1) Consideration of time required for the destruction of a skeleton.

(2) The form, situation and appearance of a fracture so as to enable a medical witness to determine whether it be of recent or old standing, and whether it was likely to have been caused by accident previously to or during exhumation, or had arisen from the direct application of violence during life.

(3) The clear determination of sex from an examination of the bones.

ARAM was found guility and after condemnation to the gallows confessed his crime.

It will be recognized that the most satisfactory answer is possible to the third proposition and while the differences in the ridges, processes and depressions in the bones of the male and female skeleton are for the most part relative, and in many instances so slight that they can scarcely be called characteristic, it is the bones of the pelvis that give any positive clue to the sex of the adult. Determination of the sex is the first step in identification, and unless the subject has passed the age of puberty the medical opinion must necessarily be guarded for only in rare cases are there any marked differences in the male and female skeleton before that time.

A skeleton may be identified as that of some particular person even after the lapse of many years through the presence of deformities, fracture, callus, bones of supernumary fingers and toes, presence or absence of teeth and their form, position and worn appearance. The examination of the teeth in many cases aids materially in forming an opinion as to the age. When I say a skeleton can be identified I mean that it can be only with reasonable certainity or to that extent that will justify a medical man in giving an opinion. There is always the possibility of a remarkable coincidence of certain physical peculiarities in different individuals that would make mistake possible; and when the medical witness is asked after giving his opinion as to the identity "whether it is possible that there could be a mistake" his answer should be at least qualified.

In speaking of expert testimony generally it would be a wise thing for the medical man in all matters upon which he has not a decided opinion to either give a qualified answer or honestly and fearlessly admit that he can give no opinion. It is arrogance pure and simple, that deters the profession in this respect. I am glad that I can say with truth that I have known physicians who have attained to eminence in their profession, who have been brave enough to admit on the witness stand that there were matters which they did not understand. They understood human nature well enough to know that such an admission was a tribute to their honesty and in the minds of fair men would not detract in the slightest from their well-earned reputations. Expert testimony should be given as the result only of faithful work and investigation on the part of the medical man. It is rare that he is called in an emergency to give testimony of this kind; he generally has ample notice of what will be required of him, and one who will not give thought and preparation to the subject that he is to testify upon is not only unjust to his employer, but also to his profession. The time has passed in all the larger communities when the medical witness can depend wholly upon his individuality or the mysteries of his profession to successfully evade the just rebuke that his thoughtless, reckless, or extravagant opinion will surely bring upon him.

25–29 Bank Chamber, Detroit, Michigan.

TRANSIENT ASTIGMATISM.*

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AS of late the phenomenon of transient variability in the curvatures of the cornea has proven of unusual interest to me, and believing that a discussion of the subject will bring forth many interesting points, I beg your indulgence while presenting a résumé of the literature at hand upon the subject of transient astigmatism, together with some additional facts which experience has revealed to me, through experimentation.

Under the caption of "Physiological Astigmatism," THORINGTON(¹) presents the following facts: "This is due to lid pressure or temporarily to extreme pulling or contraction of the extraocular muscles. It is a voluntary astigmatism and therefore not constant. It is not a condition of all eyes. The writer has demonstrated with the retinoscope and the ophthalmometer that the condition can be produced in eyes not otherwise astigmatic. Drawing the lids together in the act of squinting or frowning, the patient can press the cornea from above and below and give the horizontal meridian of the cornea a longer radius of curvature and the vertical meridian a shorter radius, or with the eye looking into the telescope of the ophthalmometer, no overlapping of the mires is noted, but in some instances when told to open the eyes widely and 'stare' into the instrument as much as one-half to three-quarters of a diopter of astigmatism may be recorded."

"It is not rare," says the late DOCTOR NOYES(²), "to discover as LAGUEUR pointed out, that the curve of the cornea is not constant. It sometimes changes as we look at it, because the images approach or separate instead of remaining still. They exhibit these oscillations under the acting of the lids, and also if the upper lid is lifted off the globe, under the action of the motor muscles. Drawing on the lids at the outer angle will increase the corneal curvatures greatly. Hence we have an explanation of the uncertain findings in some cases of astigmatism apart from spasm of accommodation."

In his excellent work on ophthalmometry, DAVIS(³) offers the following: "In a few cases, the recti muscles can, by voluntary action, alter the corneal astigmatism. I have reported one such case in the "Manhattan Eye and Ear Hospital Reports," January,

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* Read at the Chicago meeting of the WESTERN OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL ASSOCIATION, April, 1902.

1895, wherein the patient had a corneal astigmatism with the rule of 0.50 D., which he could, by voluntary action of the recti muscles, increase to 2 D. in the right eye and to 1.50 D. in the left eye. When under a mydriatic, he could still increase the astigmatism in the right eye to 1.50 D. and in the left to 1 D. The lids were held from the eye so they could have no influence."

LAUTENBACH(4), in a paper "On the Local and General Conditions that Change Corneal Curvatures," makes mention of the action of the ocular muscles, lid pressure, segmentary contraction of the ciliary muscle, in conjunction with certain dyscrasias in their weakening effects upon the substance of the cornea, as productive of temporary alterations in the curvatures of the cornea, and also makes evident that many heterophorias are due to an effort on the part of the extraocular muscles to ameliorate the astigmatic condition present.

Aside from the statement of DAVIS, we are led to infer from the above that transient modification of the corneal curvatures is of common occurrence, and would accordingly complicate our refractive work markedly. That many cases, in which a wavering of the mires is noticed, are not instances of a transient astigmatism is attested by DESCHWEINITZ(5) in the following comment: " Nothing is more common than to see the mires separate and overlap again so that the apparent curvatures of the cornea seem to change while under observation. This change is due to slight movements of the eye which brings different portions of the cornea into view. It is difficult for most patients to remain long in the required position before the instrument and hence the reading should be rapid as well as accurate."

Although the varying positions of the mires has commonly been observed in my use of the ophthalmometer, the indicated transient astigmatism has found but rare corroboration in the employment of the retinoscope and the subjective tests. Thus the thought occurred to me that, aside from the instances which DESCHWEINITZ cites, possibly this apposition and recession of the images might obtain its origin, in many cases, in the eye of the observer. A thorough investigation into the possibilities of the action of the accommodation upon the position of the mires revealed the truth of my supposition. Oscillations of the targets may be observed when an artificial cornea is employed, providing the accommodation is active. For instance, the mires are placed in apposition with the eye focussed sharply at the point of contact. If the eye is now adjusted for infinity, or in other words the accommodation is suspended, the mires separate and remain in this position with relaxation of the eye, but on fixing the mires they return to contact. With the use of a greater amount of accommodation, the images overlap. As a further demonstration of the effects of the adjustment of the eye upon the movement of the mires, the following experiment was performed by the aid of fifteen patients, mostly medical students whose training would fit them for the test. Their eyes as viewed through the ophthalmometer showed, in each instance, an apparent variability in the amount of astigmatism. They were then instructed to examine both my eye and the artificial cornea when a similar wavering was recorded. Preparatory to a refraction of their eyes, a cycloplegiac was employed, and when the accommodation was thoroughly suspended, the patient again viewed my eye and the artificial cornea when no oscillation of the mires was noted, except in one instance. In order to substantiate these findings, both my assistant and myself passed through the ordeal of mydriasis with a corroboration of the facts recorded above. Had there existed the transient astigmatism which each of us apparently possessed, a recession and apposition of the images would have obtained even under the action of the cycloplegiac, unless it were due to a segmentary action of the ciliary muscle which condition is probably very rare.

From these experiments it is evident that in order to secure accurate readings in ophthalmometry, a certain degree of skill and familiarity with the limitations of the instrument is imperative to keep the eye nicely adjusted at the point of contact of the mires. A correction of the examiner's ametropia, especially of the astigmatic variety, should receive attention as it is somewhat difficult to control the accommodation under these conditions.

Another point should be made evident to the student: care should be exercised to hold the head perfectly steady during the examination, as a movement of the head will produce an apparent transient astigmatism by directing the vision through the periphery of the eye-piece with its resulting prismatic displacement of one or both of the images.

A fact which I wish to make prominent is that, in my experience, with rare exceptions, an oscillation of the mires can be traced, either to a movement of the eye of the patient during examination, thus presenting different portions of the cornea to view, or to an accommodative effort on the part of the observer. I would, however, not have it understood that action of the lids and the extracular muscles may not produce a transient modi fication in the curvatures of the cornea; for a few instances have come under my observation illustrative of this condition. but among the cases which I have examined, only two patients exhibited enough transient astigmatism to complicate their refraction. In each instance there was a spasmodic variability in the visual acuity, even under the action of a cycloplegiac—1.00 D. of transient astigmatism being recorded in one case by the ophthalmometer and substantiated by subjective tests. This instance was unilateral and produced by spasmodic action of the lateral recti muscles.

In conclusion, I wish to make mention of the following phenomenon which I have heard discussed as an evidence of the existence of a transient astigmatism: It is occasionally observed that after an ametropia is apparently corrected, the patient will state while looking at the astigmatic dial chart that the line upon which the attention is fixed becomes more distinct than the rest of the radiating lines. This may occur with or without a cycloplegiac, and is due, in my opinion, to the presence of small degrees of over or under corrected astigmatism, together with an active accommodation. Many such cases have come under my observation, but are always regarded as an evidence of incomplete suspension of the accommodation which is fully demonstrated by further installations of the cycloplegiac. To prove the existence of a transient astigmatism, requires not only the apposition and recession of the mires (which may be accommodative on the part of the examiner), but a variability of the visual acuity together with the indicated refraction while the accommodation is under the influence of a reliable cycloplegiac, corroborated by the findings of retinoscopy. While without the necessary faculty of accommodative control the findings of ophthalmometry may be variable, with a thorough knowledge of the limitations of the method, many facts of practical and scientific interest will be presented which other means of examination fail to make evident.

REFERENCES:

(1) THORINGTON: "Refraction and How to Refract," second edition, page 122.

(2) NOYES: "Diseases of the Eye," page 123.

(3) DAVIS: "Refraction of the Eye," page 358.

(4) *Journal of the American Medical Association*, November 23, 1895.

(5) DESCHWEINITZ: "Diseases of the Eye," third edition, page 667.

340 SOUTH STATE STREET.

TRANSACTIONS.

DETROIT MEDICAL SOCIETY.

STATED MEETING, APRIL 16, 1902.

THE PRESIDENT, DELOS L. PARKER, M. D., IN THE CHAIR.
REPORTED BY LOUIS J. GOUX, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR WILLIAM P. LANE read a paper entitled "The Postmortem from the Medicolegal Standpoint." (See page 303).

DOCTOR LONGYEAR: I have an abhorrence of postmortems because those which I have attended have been upon subjects who have been my own patients. I am in accord with the sentiments expressed in the doctor's paper. I think we should have better facilities for making postmortems. It is a revelation to see a postmortem conducted in Berlin. It is done with the utmost precision, and nothing escapes attention. The same care should be exercised here, not only for our personal satisfaction but for medical reasons. There is another subject that should be mentioned, namely, the matter of expert testimony. The word "employer" is brought up in the subject of expert testimony. The physician is not employed to give expert testimony that will help the other side, even if it should be the most expert. What he desires is to help his side. I believe the expert testifier should be hired by the court and not by the lawyer or his client.

DOCTOR STEVENSON: There is a matter in connection with postmortems that has not been touched upon tonight, namely, the condition in which specimens are sent to the chemist. We have all heard complaints, undoubtedly, and yet it has not been mentioned, but it will bear reference. The portions that are ordinarily sent to the chemist for examination are the stomach, liver, kidneys and, in some cases, a portion of the brain, but two often they all come to the chemist in one container. We realize the fact that anything found in the stomach is not in the body, technically speaking. It would be possible for a person to take a drug contained in a medicine, which might cause death, and through some other cause that person might die within a few moments, and the poison found in the stomach be considered the cause of death when it was not, because it had not been absorbed. The poison must be found in the kidneys, the liver, and, in some cases, in the brain. Within the past four or five years I have had several opportunities of working upon specimens, and during that period at least three times the specimens have been received mixed up in one barrel. It would be impossible under these circumstances for the chemist to state whether the poison was in the stomach or whether it had entered the general circulation. Then the importance of preparing the specimen before sending it. Two years ago, you will remember a young lady suffered some taint because she had been a nurse in Harper's Hospital and became a widow suddenly. It was concluded, from the evidence given by the hired girl of the family, that she had fed her husband ground glass and he died from indigestion. The postmortem was made at night, in a barn, near the graveyard, the only light being that of a lantern and a kerosene lamp. The contents were placed in ordinary fruit jars and sent to a chemist, who found no organic defects but found three pieces of glass. The lawyer for the defense did not claim that there was no glass, but the question was asked of the chemist, Was the glass in the stomach? and he could not say. The plea of the defense in this case was that it was a well-known fact that in tightly screwing off the top of a fruit can pieces of glass would often be ground off into canned fruit. Some attention needs to be paid to the methods of sending specimens to the chemist. The remarks of DOCTOR LONGYEAR in regard to the lawyer employing the doctor also impressed me, on account of some other developments in these same cases. Probably you remember, evidence was produced in that case to show that it was possible to feed an animal ground glass and not produce death. The prosecution was very anxious to show that glass fed to an animal would kill it, and so the next day a doctor in that locality was placed upon the stand who said that a week or two previous he had fed a dog glass in the afternoon and the next afternoon the dog died in intense agony, and evidence of intense inflammation was found in the intestinal tract. It finally developed from the evidence of the town marshal that the previous afternoon he had shot the dog but the animal escaped, and hence it was proved that the dog died of lead poisoning instead of glass "poisoning." The doctor finally acknowledged that he had not made an examination of the dog.

DOCTOR HISLOP: A great many people are much against postmortems. In the past, doctors have been very careless with their postmortems. They will even begin a postmortem without having made proper preparations to perform it. They will probably have to run into the kitchen for a slop pail with their hands all covered with blood, which of course is very mortifying to the people. A man who is not educated in medicine does not know anything about the legal aspects of conducting a postmortem. Many times postmortems are done by inexperienced physicians. There should be some law, or general understanding in regard to permitting undertakers to use preserving fluids, as it so often happens in cases of suspected murder that they say the subject has been injected with arsenic fluid.

DOCTOR HILLS: The suggestion of DOCTOR HISLOP that, in postmortems made on private cases in the houses of patients, we have everything ready before beginning work, is a valuable one. In those cases one usually has to do the work on an ordinary undertaker's cooling board that is not always the most stable. Sometimes it is necessary to secure a kitchen or dining room table, but in any case a fairly liberal use of newspapers or oilcloth, a pail of warm water and sponge, or one or two towels, will enable the physician or coroner to go on with his work, get the body clean, and themselves in a presentable condition before the friends see it. These are the facilities for attending to public cases in Detroit. I believe that an appropriation of $5,000 was made some time ago for the purpose of erecting a suitable morgue, but nothing definite has been done in regard to building it. I believe one of the medical colleges offered a portion of their laboratory building for that purpose, but through fear of antagonizing some of the other college hospitals the offer was not accepted. The original proposition, I believe, was to make such a morgue in the County Building, but no place was obtainable where suitable light could be had. If those who have control of politics would interest themselves to the extent of securing these things they would be doing a great deal for the profession.

DOCTOR LANE: In regard to state experts, mentioned by DOCTOR LONGYEAR, it seems right that a state expert should go in any part of the state and give expert evidence. Another question is that of glass being poison. Poison is anything that, when it enters the circulation, produces chemical irritation and impairs health.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.
AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
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The Acid Resisting Group of Bacteria.—A most valuable contribution to the study of the acid resisting group of bacteria appears in the article of Doctor A. C. Abbott and Doctor Gildersleeve, published in *The University of Pennsylvania Medical Bulletin* for June, 1902.

After a careful résumé of the literature of this subject, the authors report the results of their somewhat extensive researches on the pathogenesis, the botanical relation of these bacteria to the bacillus tuberculosis, and the significance of acid resisting bacteria in butter.

In consideration of the first point their work differs from that of others, with the exception of that of Sato and Brauer, in that they carried out their investigations on the larger domesticated animals, those which are the most susceptible to tuberculosis, such as hogs and calves.

Four hogs were selected and tested with tuberculin; none reacted. Three of these hogs were inoculated in the loose cellular tissue of the right groin with Moeller's grass bacillus

II; the fourth being kept as a control. The animals gained in weight and were in no way affected by the inoculation.

Two hogs were killed respectively fifty-five days and seventy days after inoculation. No acid resisting bacilli were found, or lesions that were in any way suggestive of tuberculosis. Because of their experience with the first two hogs and of the thriving condition of the third the authors adopted more radical measures. The third and the control hog were inoculated with large doses of the grass bacillus II, directly into the lung through the chest wall. These animals were killed respectively thirteen and seventeen days from the time of inoculation. In both autopsy revealed increase of fibrous tissue at or near the point of puncture of the needle. Scattered through this tissue and also at a number of points in the thickened pleura yellow points varying in size and shape were isolated. The substance of the lung even in the vicinity of the inoculation showed no nodules.

Microscopic examination and cultures showed in these inflammatory foci and also in the communicating lymphatics enormous numbers of acid resisting bacilli. Actinomyces-like development was not observed in this series. The grass bacillus II of Moeller, the authors therefore contend, is practically without pathogenic properties of importance for hogs.

The second series of investigations was that of the intravenous (left jugular) inoculation of six calves—three with timothy hay bacillus of Moeller and three with butter bacillus of Rabinowitsch.

Two of the animals were killed twenty-two days and four twenty-three days after inoculation. In not a single instance did the autopsy reveal lesions referable to bacteria with which they had been inoculated.

The third series of investigation as to pathogenesis was that of the intrapulmonary inoculation of nine calves; five with Moeller's grass bacillus II, two with butter bacillus (Rabinowitsch), and two with Moeller's timothy hay bacillus. Inoculation was made directly into the lung through the chest wall. The results, so far as producing a condition simulating tuberculosis is concerned, were absolutely negative. Those calves inoculated with grass bacillus II and timothy hay bacillus were in every way negative, while of those inoculated with butter bacillus Rabinowitsch only one showed acid resisting bacilli, and these in points near the site of inoculation, but in no other organs. No actinomyces or anything to suggest them were found, nor was there anything to suggest tuberculosis.

From both intravenous and intrapulmonary inoculation there was either no result at all or there occurred only local processes of an ordinary character.

In consideration of the second point the authors conclude that there can be little doubt of the botanical relationship of the so-called bacillus tuberculosis, and the so-called acid resisting bacilli, the ray fungi of actinomyces, and the so-called streptothrices concerned in the condition known as pseudotuberculosis. In this they concur with the already well-known views of Lachner-Sandoval who presents a strong plea for the classification of the entire group as actinomyces. The term bacillus is therefore botanically incorrect.

This actinomyces mode of development of the acid resisting bacteria was called attention to by Lubarsch in 1899, whose work is most beautifully verified by the authors who present colored plates of this so-called ray arrangement of elongated club-shaped and ribbon-like hyphæ found in the tissues after inoculation of guinea pigs with butter bacillus (Rabinowitsch), grass bacillus II (Moeller), and timothy hay bacillus (Moeller). They are more commonly marked by this type of development than is the case with the true tubercle bacillus.

In consideration of the last point the authors investigated fifty samples of butter from various sources. Five samples contained acid resisting bacteria that resembled bacillus tuberculosis in some of their staining reactions and morphological peculiarities and that were capable of causing nodular lesions when injected with butter into the peritoneum of the guinea pig. Genuine tubercle bacilli were discovered in none of them. Microscopic examination for differentiation of these organisms from the tubercle bacillus is a matter of difficulty if not of impossibility.

In conclusion, those points which have not already been cited are: In the case of lesions produced by inoculating rabbits and guinea pigs with acid resisting bacilli—(*a*) that when occurring as intravenous inoculation they are always seen in the kidneys, only occasionally in the lungs and not at all in the other organs; (*b*) they constitute a local lesion having no tendency to dissemination, metastasis, or progressive distruction of tissue by caseation; (*c*) they tend to terminate in suppuration or organization rather than in progressive caseation as is the case with true tubercles. D. M. C.

Acid Resisting Bacilli in Five Cases of Pulmonary Gangrene.—Ophüls (*Journal of Medical Research*, June, 1902) reports five cases of pulmonary gangrene in all of which he found bacilli belonging doubtless to the actinomyces group of bacteria, and which were more or less acid resisting. The author suspects that these bacteria come from the mouth because "similar organisms were found in several cases of suppuration, of extremely unpleasant odor, following disease of the teeth and gums." Cultures were not obtained. These bacteria stain badly with methylene blue, better with dilute carbolic fuchsin. They decolorize in acid alcohol, but not in twelve and one-half per cent aqueous solution of sulphuric acid.

The author carefully analyzes the literature, and concludes with the view that is generally held, that—

(1) Pulmonary gangrene is very probably always due to mixed infection with pyogenic cocci and other bacteria of a more saprophytic nature.

(2) Quite frequently the latter belong to the class of actinomyces and they may be more or less acid-proof.

(3) The gangrenous process is always accompanied by pneumonic processes which in the more chronic cases usually appear in the form of a chronic catarrhal pneumonia with carnification.

D. M. C.

New and Simple Method for the Differentiation of the Colonies of Typhoid, Colon, and Allied Bacilli.—Hiss (*Journal of Medical Research*, June, 1902) considers somewhat at length the reaction of typhoid bacilli, colon bacilli and the intermediate group of bacilli known as the Gärtner group to various special media. It may not be out of place to give here the classification of these bacilli:

(1) *The Typhoid Group.*—Represented by the typhoid bacillus.

(2) *The Gärtner Group.* — Represented chiefly by Gärtner's bacillus enteritidis. Other members of this group are bacillus psittacosis, bacillus icteroides (Sanarelli), bacillus typhi murium "Seemann" (Schuttmüller), and bacillus para-typhoid Müller (Schuttmüller).

(3) *The Colon Group.*—Represented by (*a*) the true bacillus coli communis by Escherich, which does not ferment saccharose, and (*b*) the bacilli which ferment saccharose with gas evolution.

(4) *The Aerogenes Group.* — Represented by organisms which ferment not only dextrose, lactose and saccharose but also some polysaccharids with evolution of gas.

Physiologically there is no difficulty in differentiating typhoid bacilli from typical colon bacilli, and there is no reason for confusing the typhoid bacillus with any of the more closely allied forms occurring in the Gärtner group. But with the individual and colony morphology it is different; even extreme types are not readily distinguished from each other by morphological characters. A method doing away with these physiological reactions and confining itself to morphological peculiarities of colony development in the original plates, however, appeals to clinicians as a simpler and less time-consuming method.

Much work has been done with this end in view and various media have been from time to time proposed. All of these have shown a greater or less departure from the ideal method as they require certain temperature conditions which are difficult to maintain. The author's aim, therefore, has been to devise a more easily prepared and simpler medium for the recognition of the colonies of these bacilli.

Of the various media experimented with the author finds the following the best:

FOR PLATES.		SEMISOLID TUBE MEDIUM.	
Agar,	15 grammes.	Agar,	5 grammes.
Gelatin,	15 "	Gelatin,	8 "
Liebig's Meat Ext,	5 "	Liebig's Meat Ext,	5 "
NaCl.,	5 "	NaCl.,	5 "
Dextrose,	10 "	Dextrose,	10 "
Distilled water. 1000 cubic centimeters.		Distilled water, 1000 cubic centimeters.	

To Isolate Typhoid Bacilli from Feces.—Transfer from one to several loopfuls of feces to a tube of nutrient broth or sterile water. Several tubes containing the plate medium are *thoroughly* melted and inoculated with from one to five loopfuls of the resulting emulsion, care being taken to mix well. Plates are made, allowed to harden, and then placed in the incubator at 37° centigrade for from twelve to eighteen hours.

If typical deep colonies with fringed threads and outgrowths are found the semisolid tube medium is then inoculated from them and placed in the incubator at 37° centigrade for from twelve to eighteen hours, at the end of which time diffuse clouding and absence of gas formation is considered further evidence that these organisms are typhoid bacilli. On subsequent examination these bacilli have always been found by the author to correspond in all their reactions to the typical typhoid bacilli.

To Differentiate Typhoid Bacilli from Various Allied Forms.—The colonies of bacillus typhosus are to be distinguished from those of colon bacilli by the formation of irregular colonies fringed with threads; the colon colonies remaining more regular and without threads. In the semisolid tubes colon bacilli ferment the glucose with the evolution of gas and the medium remains clear or nearly so.

Practically the same conditions obtain with the Gärtner group as with the colon. Bacillus enteritides is the only member of this group which shows a marked tendency to irregular colonies and thread formation in the plates. This group also ferment the glucose of the semisolid tube medium with the evolution of gas.

The paper deals chiefly with the differentiation of the typhoid bacillus from bacilli with which it may be confused but not to any extent with the differentiation of these latter one from the other. The so-called thread formation was first observed in 1896 by Klie (*Centralblatt für Bakteriol.*, 1896, Number XX, page 49). D. M. C.

The Identification of the Colon Bacillus by Reactions Produced in Culture Media Containing Neutral Red.—Rosenberger (*Philadelphia Medical Journal*, March 8, 1902) reports his observations on the value of neutral red agar in differentiating the colon bacillus from other microorganisms. It has been claimed by Hunter that he has been able to detect the presence of the colon bacillus in water supplies by simply inoculating the water upon this medium and obtaining the reaction, that is, a fluorescence and a turning of the medium to a yellowish color. This does not occur with the bacillus typhosus:

The writer's conclusions are:

(1) That while not affording a specific reaction in the case of bacillus coli communis, neutral red agar should be classed as a valuable differentiating medium.

(2) The typhoid bacillus, while it does not cause a fading of the color of the medium, never gives rise to the fluorescence noticed in some cultures of the bacillus coli communis.

(3) Further, the test medium should not be depended upon as the only differentiating one in the examination of water, as several very common bacteria found in water give the same reaction.

The medium is made by using ordinary peptone agar and adding five drops of a saturated watery solution of the dye to each tube containing fifteen cubic centimeters of neutral agar. The medium is then sterilized and allowed to "set" as ordinary slant agar. Reaction is watched for, for from one to five days.

D. M. C.

SURGERY.

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The Omentum as a Surgical Factor in Laparotomy.—Marcy, of Boston, in a paper read before the Section on Obstetrics and Diseases of Women at the last meeting of the American Medical Association and published in the *Journal of the American Medical Association*, says that while the importance of the omentum is apparent little is really known about its function. It protects the intestines, equalizes the lymph circulation, regulates blood currents and blood pressure and the presence of fat in its substance equalizes the temperature of the abdominal organs. The manner in which the omentum becomes associated with a process of inflammation suggests a phagocytic power. Pressure by fluids or tumors may greatly interfere with its function which will once more assert itself when the pressure is removed. It is singularly free from disease and injury, neoplasms are usually secondary, cysts rare, recovery the rule in case of removal of the latter.

Adhesions of the omentum frequently follow abdominal operations, most frequent at the line of incision. Bands of adhesions or openings may cause hernia or fatal obstruction. It is a common part of all forms of hernia, and in such a position frequently shields the intestine. When a large part is infected or deformed we do not hesitate to remove it, but care must be taken to stop all hemorrhage by use of a double row of sutures. Pieces of it are used for covering doubtful surgery. The omentum should be handled with care and carefully replaced after exposure in surgical operations. C. G. D.

GYNECOLOGY.

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Instrumental Perforation of the Puerperal and Non-Puerperal Uterus. — Krusen (*American Medicine*, December 14, 1901) reports a case of accidental perforation of the uterus during the course of curetting, the first warning of injury being the appearance of a piece of the omentum at the external os. Krusen was called in consultation and saved the patient by an immediate laparotomy, removal of the bruised piece of omentum and suture of the uterine rent.

Krusen calls attention to certain conditions of the uterus favoring accidental perforation such as carcinoma of the body or cervix, subinvolution following frequently recurring pregnancies and abnormal fragility of the uterus caused by atrophy, anemia and tuberculosis. It is extremely necessary to recognize the position of the uterus by bimanual examination prior to instrumental divulsion and curetting, since the organ when acutely anteflexed or retroflexed may be perforated by the curette. Besides the position of the uterus the presence or absence of adnexal disease should be determined by the physician before curetting be attempted, otherwise much harm may result.

The perforation may be either partial or complete, and the injury may be cervical or fundal.

The result of the injury may be:

(1) *Infection.*—Septic material may be carried into the peritoneal cavity either when the uterine canal is septic or when septic instruments are used.

(2) *Hemorrhage.*—The amount of blood lost from the accident depends upon the position and extent of the injury and the contractile power of the uterus.

(3) *Visceral Injury.*—The intestine may be injured by the perforating instrument outside of the uterus or may be drawn through the rent into the uterine or vaginal canals.

(4) *Poisoning by Chemical Antiseptics.*—These may pass through the uterine perforation into the peritoneal cavity and cause rapid and fatal poisoning.

(5) *Pelvic Peritonitis.*—This is not very likely to result if the technique of the operator has been good.

As to treatment when there is a possibility of uterine perforation, irrigation should not be practiced, or at least only saline solution employed. When a simple perforation of the uterus has occurred under aseptic conditions without marked symptoms of shock or visceral injury, no operative interference is indicated. In all cases of visceral complication immediate celiotomy and repair of the injury is indicated.

Of interest in this connection is a recent discussion in the New York Obstetrical Society (*American Journal of Obstetrics*, May, 1902) following the report by Doctor LeRoy Brown, of a case of "Rupture of a Six-Weeks Pregnant Uterus at its Horn During a Divulsion with a Faulty Dilator Preparatory to Emptying the Uterus of the Remains of a Miscarriage." There had been a constant flow from the vagina for ten days following an accidental blow to the abdomen. The divulsor tore through the cervix up to the uterine horn. The abdomen was opened and the rent in the uterus united by two rows of catgut sutures and covered with peritoneum. Recovery was uneventful. The operator ascribed the accident to the faulty construction of the Wathen dilator employed, in that it was not provided with a shoulder, thus allowing the blades to pass upward fully three inches into the uterine cavity.

Similar accidents were reported by Doctors Grandin, Coe, Waldo and Boldt. The opinions seemed to be divided as to the cause of the accident, some ascribing it to the make and unnecessary force exerted by the instrument while others thought it possibly due to the condition of the uterine walls, traction upon the cervix thereby placing the muscles of the uterus on the stretch, or to the unskilled use of the instrument. Doctor J. Riddle Goffe made a good point in deprecating the use of screw power in securing the necessary dilation, and by urging that the operation be performed by repeated approximations of the handles of the instrument, gently or forcibly, as the conditions require, Doctor Henry C. Coe has seen the accident occur in skilled hands and thinks it unfair to criticize a particular instrument or the operator, since the accident may be due to an unsuspected pathologic change in the uterine muscle.

Fibromyomatous Tumors of the Vagina.—Richard R. Smith (*American Journal of Obstetrics*, February, 1902) has taken the occasion, in reporting a case of myoma of the vagina occurring in his own practice. to review the subject of myomatous and fibromyomatous tumors of the vagina. Kleinwächter, in 1882, collected fifty cases of this rather uncommon disease and Smith, by a thorough and painstaking search of the literature, has been able to bring the number of cases up to one hundred. The work has been admirably performed and has resulted in a valuable monograph which is summarized as follows:

Fibroma (myoma and fibromyoma) of the vagina is a rare disease. It occurs most frequently in women between thirty and forty, but has been observed at ages ranging from twenty to seventy. The cases observed in infants are open to doubt as to diagnosis. It occurs apparently independently of civil condidition. No proof can be deduced to show that it affects fertility. It may obstruct labor when large. When the growth is small it rarely affects coitus and may not do so even though the growth be large. There is some evidence that in certain cases menstruation may be increased. The tumors, when small, produce no symptoms of consequence; when large they may rarely be the source of considerable suffering and even danger. The symptoms, when present, are pain, hemorrhage, discharge, obstruction to bladder and rarely to bowels. No exact division of the cases into fibroma, myoma and fibromyoma can as yet be made. The term fibromyoma will probably cover most of them, but pure fibroids have been observed. Pure myomata may also exist. The tumors grow from anterior or posterior wall in proportion of about two to one. They may be sessile or polypoid. They vary greatly in size. They are single with very rare exceptions. They are, as a rule, very slow of growth. They are prone to edema, necrosis and ulceration. Treatment is essentially surgical.

PEDIATRICS.

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The Preparation of Cow's Milk for Infant Feeding.—Glidden (*New York Medical Journal*, July 12, 1902) says there have been many formulæ advanced for modifying to certain percentages, but most are too complicated to be used at home by the mother or nurse. Holt's system of progressive solutions which are diluted or modified does not appeal to me, nor does Chapin's top-milk method. The most convenient method is that advanced by Baner in the *New York Medical Journal* for March 12, 1898. Having decided upon the quantity for one day's feeding and the percentages of fat, sugar and proteid, we are ready to find the amount of cream, milk, sugar and water necessary to make the requisite quantity of the given formula. The formula is as follows:

Given—Quantity desired (in ounces), I.
Desired percentage of fat, F.
Desired percentage of sugar, S.
Desired percentage of proteid, P.

To find (in ounces).

$$\text{Cream} = \frac{1}{12} \text{ X } (F - P).$$

$$\text{Milk} = \frac{I \text{ X } P}{4} - C.$$

$$\text{Water} = I - (C + M).$$

$$\text{Dry milk sugar} = \frac{(S - P + I.)}{100}$$

Suppose we want twenty-four ounces of a mixture to contain four per cent of fat, seven per cent of sugar, and one and five-tenths per cent of proteid—

$$\text{Cream} = \frac{24}{12} \text{ X } 2.5 = 5 \text{ ounces.}$$

$$\text{Milk} = \frac{24 \text{ X } 1.5}{4} - 5 = 4 \text{ ounces.}$$

$$\text{Water} = 24 - 9 = 15 \text{ ounces.}$$

$$\text{Dry milk sugar} = \frac{5.5 \text{ X } 24}{100} = 1.32 \text{ ounces.}$$

The written direction to the mother would be to dissolve four heaping teaspoonfuls of dry milk sugar in fifteen ounces of water. As one heaping teaspoonful of milk sugar is equal to about one-third of an ounce, add four ounces of milk and five ounces of cream, and divide into as many bottles as desired.

Friedlander (*Archives of Pediatrics*, April, 1902) says the lymph nodes perform a double function, namely, acting as a filter to resist the furthur spread of all the local irritations and inflammations of the organism, and for rendering innocuous the most varied kinds of virus. Generally infection occurs only when these nodes are unable to render innocuous the bacterial toxins. The lymphatic system in early life is very prone to inflammation and to harbor various pathological microorganisms. as the resistive powers of early life are but poorly developed. Added to this is the disposition, often hereditary, not infrequently aggravated by faulty conditions of development, hygiene, and sanitation, to chronic inflammation of mucous membranes, associated with congestion and hyperplasia of the lymphatics and lymph nodes. We may find a nonspecific lymphadenitis, but the existence of this hyperplasia of lymphoid tissue certainly favors the development of tuberculosis. This hyperplasia furnishes the soil whereupon the seed of tuberculosis may grow and flourish. Almost all children at some time in life exhibit bronchial adenitis, as the result of measles, whooping-cough or influenza, and if the child be healthy and strong it recedes with the disappearance of its cause, but if the child is for any reason below par in development or in malnutrition the adenitis is liable to persist for a greater or less time. Children with bronchial adenitis with lowered resistance and often with an hereditary tubercular diathesis will explain the frequency of tubercular adenitis. The author believes that tubercular infection of bronchial nodes may come through extension in continuity, from adenoids, enlarged tonsils, or cervical adenitis. The early symptoms of enlarged bronchial lymph nodes, are the peculiar paroxysmal cough like pertussis, without the crowing inspiration. Dyspnea is often present, anemia without discernible cause is suspicious. The child is listless and has little desire to play. Sleep is restless. The appetite is poor, the child is usually poorly nourished, and "catches cold" easily. The signs of enlarged bronchial lymph nodes are always those of compression. Inspection and palpation may afford suggestive information. Oscultation often gives positive signs. If a venus hum is heard over the manubrium during retraction of the head it is of almost definite diagnostic value. The prognosis is more favorable the earlier we recognize this condition, otherwise we have the prognosis of tuberculosis in childhood in its entirety. For treatment see folio 179, The Physician and Surgeon, April, 1902.

Underfeeding and Overfeeding of Children.— Southworth (*Archives of Pediatrics*, May, 1902) says the dangers in the feeding of children during their second year arise from underfeeding and overfeeding. A child may fail on abundant food of an unsuitable type as well as upon insufficient food. We should endeavor to provide a food adapted to the digestive powers of the child and have it of sufficient quantity and of nutritive quality to enable the child to thrive. During the second year the change to substitute feeding is to be made and the child has to adapt itself more or less to digestion of adult diet. In those children who are able to thrive upon modified milk less trouble is experienced. The weaning from breast to modified milk should, if possible, be done in the cooler months, but if in the warm months, it should be gradual and with partial supplemental feeding. Cereal gruels may well be used as diluents, especially oatmeal. It is well to keep in mind that cow's milk should be, except in extreme cases, the basis of a child's food during the second year, and Doctor Southworth advises against a too early discarding of the nursing bottle and recommends it strongly for the 10 o'clock P. M. feeding. He recommends the following dietary:

7:30 A. M.: Breakfast, bottle of milk diluted if necessary.
11:00 A. M.: Bottle of milk with crust or Zweibach.

2:00 P. M.: Dinner, with less milk as other food is increased.
6:00 P. M.: Supper, including bottle of milk.
10:00 P. M.: Bottle of milk.

Soft boiled eggs may be given early in the second year with stale bread or Zweibach. Meat juices and fruit juices in moderation may be allowed. By the middle of the year part of a thoroughly soft baked apple, a little spinach passed through a sieve, and a little later fresh green peas, asparagus tips or mashed potatoes may be tried, served, if necessary with salt and cream, or meat juices for variety. Meat must await the child's masticatory powers, but the expressed juice of lightly cooked steak may be given early, especially if the child is rachitic. During the latter half of the second year scraped meats or the finely minced white meat of poultry may be given, but excessive meat and its derivative should be avoided and the amount should bear some relation to the amount of exercise and outdoor life. Children should be taught to eat a fair range of suitable articles and not allowed to have preference based on appearances or taste, and should not be allowed to come to family table as they get articles of diet which are injurious to them. He lays special stress upon avoidance of deserts and sweets. The average child will suffer the consequences if there is much departure from this standard, and he concludes by saying that the healthy child furnished with fresh air and sunlight, and who has not been pampered, but accustomed to plain diet with moderate variations does not need to be tempted to eat; and if food should, in the hot weather become temporarily repugnant, we should respect this protest of nature and place the child on a lighter diet as a prophylaxis.

OPHTHALMOLOGY.

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Resection of the Cervical Sympathetic Ganglia in Glaucoma: Its Present Status.—Marple (*Medical Record*, May 10, 1902), after reviewing the different methods of procedure, draws his conclusion from eighty-six cases reported.

Most recent operators go in back of the sternocleidomastoid muscle and content themselves with a removal of the superior ganglion, instead of taking all three. In the hands of a skillful surgeon the operation is not one of great difficulty. The prediction that the operation would have disastrous consequences upon the general health of the patient as well as upon the nutrition of the eye, has not been realized. Neither cataract nor intraocular hemorrhage has been reported as following the operation. Paralytic effects are ptosis, some enophthalmus, ocular and nasal injection, and often increased temperature of the side of the head. An accidental complication, due probably to section of the recurrent laryngeal nerve, has been reported resulting in hoarseness amounting, at times, almost to aphonia. However, the operation can be regarded as relatively harmless. The bilateral operation should not be performed.

The benefits claimed for sympathicetomy in glaucoma are diminution in tension, improvement in vision, widening of visual fields, and relief of pain.

As only twenty per cent of the patients operated upon have been under observation a year or more it is difficult to decide what the operation has accomplished or when indicated. Based upon the eighty-six operations performed by various surgeons, the writer sums up the present status of the procedure as follows:

(1) That the operation of extirpation of the sympathetic ganglion is a safe procédure in the hands of a skillful surgeon.

(2) That while the material is not yet sufficient to reach a positive conclusion as to the permanence of its effect, it is nevertheless established that some of the glaucomatous cases have been improved for some months by resection, in others the condition apparently remains stationary. The results have varied, and one cannot yet be sure in what cases it can be advantageously employed. It, at least, apparently does no harm. A considerable number of favorable results have been reported in chronic irritation or inflammatory glaucoma as well as in simple glaucoma, in which oftentimes pain is abolished.

(3) It does not replace iridectomy but may possibly supplement the latter, in case this is refused or has already resulted disastrously in the other eye, or is contraindicated as in hemorrhagic glaucoma, dacryocystitis, et cetera.

(4) Until our cases are observed more carefully and for a longer period of time, it will be impossible to arrive at positive conclusions as to the indications for the operation, or as to its permanent results.

The Value of Trikresol as an Antiseptic in Ophthalmic Practice.—Edward Jackson (*Ophthalmic Review*, June, 1902) states that he considers trikresol solution (one to one thousand) to be more nearly an ideal basis for collyria and as an antiseptic solution adapted to the eye than any other solution yet tried in ophthalmic practice. After two years use he finds its bacteriologic influence to be all that was claimed. Instilled into the conjunctiva, it causes a very slight momentary sensation of burning. He has used it as a basis for solutions of cocain, eserine, most of the mydriates, and even boric solution; but not for solutions of homatropin or atropin, when repeated instillations are required, since even the slight sensation and increased lachrymation are objectionable. He has found that a solution of one to one thousand is free from the risk of making the eye worse in any respect, is an antiseptic solution that will at least keep itself clean, and that it has a distinctly germicidal influence when used to wash out the conjunctiva. "While the solution of one to one thousand has a very noticeable smell of trikresol, this smell does not remain noticeable about the patient on whom it has been used. In all respects it seems superior to carbolic solutions to lay instruments in, to keep them from contamination after cleansing. It is superior to formaldehyde solutions, for this purpose, because there is no need to remove a source of irritation by rinsing the instrument coming from it in something else before using it upon the eye.

THERAPEUTICS.

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The Treatment of Dysentery.—Hare (*Therapeutic Gazette*, April, 1902) reviews the treatment of dysentery. He first calls attention to the importance of beginning the treatment early in order to prevent as far as possible destruction of tissue by the microorganisms present. He also lays great stress on the importance of limiting the diet to those foods that are digested and absorbed to the greatest extent in the stomach and duodenum, to the exclusion of those that form a large residue.

Milk, he thinks, is of doubtful value, on account of the curds so apt to result from its ingestion. If used at all it should be well diluted and in small quantities frequently repeated rather than in large quantities at one time. Milk toast and very soft boiled eggs are mentioned as a good form of diet and preferable to milk alone.

He presents three methods of internal treatment. The first is the ipecac plan. This while empirical is often efficacious and may owe its effect to the increased quantity of bile it causes to be thrown into the intestine. In making application of this form of treatment large doses of ipecac are given until vomiting occurs, after which three grain doses of the same drug combined with opium are given every hour until a profuse tarry stool is produced. The opium is of value in controlling vomiting, pain or tenesmus. Stimulants may be necessary with this treatment but if so alcoholics had best be avoided on account of their effect on the liver.

The second form of treatment is the so-called purgative plan. This has become quite popular within the last few years and consists of the administration first of magnesium sulphate and afterward of free doses of aromatic sulphuric acid. The rationale of this treatment is explained by calling attention to the fact that the microorganisms commonly found in dysentery do not thrive in an acid medium, and further that aromatic sulphuric acid is decidedly astringent in its effects upon the intestinal mucous membrane.

The third plan mentioned is the antiseptic method of treatment. The administration of substances such as bismuth salicylate, benzo-naphthol and salol, while theoretically valuable, are in practice usually disappointing, and should not be employed to the exclusion of either of the other plans mentioned. Calomel and corrosive sublimate, while seeming to come under this head, are valuable on account of their effect in increasing the activity of the liver much the same as does ipecac.

Passing to local treatment, Doctor Hare thinks high intestinal irrigations are of great value. Zinc sulphocarbolate in the proportion of twenty grains to the pint and silver nitrate of the strength of a drachm to three pints are valuable remedies for local application to rectum and colon. If necessary to overcome tenesmus a ten-grain iodoform suppository may be used a half hour before the injection is given. If grateful to the patient, but not otherwise, ice-water may be used for the irrigation. Solutions of tannic acid are not recommended.

The injections should always be given from a fountain syringe, elevated not more than two or three feet, and should be given gently and slowly so as to avoid pain. Normal saline solution should always be preferred to pure water as an injection in these cases.

Doctor Hare concludes his paper by calling attention to the form of dysentery that sometimes complicates advanced cases of renal disease. The disease here may depend upon the bacilli of Shiga. In its treatment measures should be taken to aid the kidneys in eliminating impurities from the body. Good results have been obtained in this class of cases from the employment of antibacterial serum, and also from the use of a one to five thousand solution of quinin injected high in the rectum.

HYGIENE.

BY GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
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Money Value of Sanitation.—The money value of sanitation is thus illustrated (*Indiana State Board of Health*, May, 1902) in the case of Philadelphia, where the poor water supply has made typhoid fever prevalent. The number of deaths from typhoid fever was 449. Placing a valuation of $5,000 on each life, we have a loss to the city of $2,245,000. Other losses as follows: Burial expenses of 449 people, at $40, $17,960; 3,227 cases of typhoid fever requiring medical attention, at $30 a case, $96,810, and 83,340 days lost from employment, at $2 a day, $166,630, brings the grand total of $2,021,160 loss from the ravages of one disease for a single year. If this sum were to be expended as interest on a sinking fund at five per cent for thirty years. it would give to the people of this city a sum of $131,300,000 to expend in preventing typhoid fever alone.

The " Harmless " Nature of Measles.—It is well nigh a hopeless task (*Merck's Archives*, June, 1902) to uproot some ideas and beliefs which have succeeded in gaining currency among the people. The people are convinced that measles is too trivial an affliction to be dignified with the name disease, and they therefore consider all treatment superfluous. After the rash has disappeared, the trouble is considered as over, and no further attention is usually paid to the child. But on studying the mortality tables issued by the board of health we encounter some very curious facts and figures. The report for the quarter ending March 31, 1902, issued by the New York Department of Health is now before us. The influenza this year was of a mild character, there being fewer deaths, by 609, directly attributable to it than in the first quarter of 1901. From past experience we had a right to expect a corresponding decrease in the number of deaths from diseases of the respiratory tract. As a matter of fact, there were 344 more deaths from pneumonia and acute bronchitis in the first quarter of 1902 than in the corresponding quarter of 1901; but on looking further we see that this increase in deaths is confined *entirely* to children under five years of age, and these diseases were the direct sequelæ of an epidemic of measles. The number of deaths during January, February, and March caused by the measles directly was 349, almost as many as were caused by scarlet fever (356). This is a pretty respectable mortality for a harmless disease.

Hygiene of Churches.—The Bishop of Fano. in North Italy, provides (*Sanitarian*, August, 1902) for the association of cleanliness with godliness in his instructions to pastors; an example which might well be emulated in religious circles generally. In all churches after feast days on which unusual numbers of people have congregated, the floors are to be cleansed with a sublimate solution one to one thousand. At least once a week pews and confessional benches must be wiped with a damp cloth, and the grating of confessionals washed with lye. The appurtenances of the altar are likewise to be cleansed with lye or sublimate.

PATHOLOGY.

By ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN
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Causes and Varieties of Chronic Interstitial Pancreatitis.—Opie (*American Journal of the Medical Sciences*, May, 1902) has studied twenty nine autopsy cases of chronic interstitial pancreatitis occurring in the service of the Johns Hopkins Hospital. Of these cases seventeen were in males and twelve in females, and over two-thirds of the cases occurred between the ages of forty and sixty years. In ten cases the chronic inflammation followed partial or complete obstruction of the pancreatic ducts. In one case complete occlusion of the portal vein was accompanied by moderate proliferation of the interstitial tissue; in one case the lesion was accompanied by widespread pigmentation described by von Recklinghausen under the name of hemochromatosis. In the remaining seventeen cases the etiology of the condition was more obscure but in most of them discoverable. In twenty-one cases the inflammation was of the interlobular type, in eight cases it was interacinar.

As a result of this study Opie concludes that the most frequent cause of chronic interstitial pancreatitis is obstruction of the duct of Wirsung due to pancreatic calculi, to biliary calculi in the terminal part of the common duct, or to carcinoma invading the head or body of the gland. Duct obstruction may be followed by the invasion of bacteria which take part in the production of the resulting lesion. Ascending infection of the unobstructed duct may follow an acute infection of the duodenum or of the bile passages, and may cause chronic inflammation. General or local tuberculosis is occasionally accompanied by chronic diffuse pancreatitis. Chronic interstitial pancreatitis is not infrequently dependent upon the same etiological factors, notably alcohol, which produce cirrhosis of the liver, and in about one-fourth of the cases the two lesions are associated. Following duct obstruction and ascending infection the lesion affects principally the interlobular tissue, only secondarily invading the lobular tissue and sparing the islands of Langerhans. Diabetes results only when the lesion is far advanced. Accompanying the so-called atrophic or Laennec's cirrhosis of the liver the pancreas is at times the seat of a diffuse chronic inflammation characterized by diffuse proliferation of the interacinar tissue, which invades the islands of Langerhans. A similar lesion accompanies hyaline degeneration of the islands of Langerhans and the condition known as hemochromatosis. Interacinar pancreatitis is usually accompanied by diabetes mellitus. When diabetes is absent the lesion is of such slight intensity that the islands of Langerhans are little implicated.

Zur Histopathologie des Pankreas beim Diabetes Mellitus.—Herzog (*Virchow's Archiv*, May 3, 1902). The changes in the pancreas of five cases of diabetes mellitus are described. In all the cases the islands of Langerhans showed changes varying from a slight diminution in number in the first case to a total disappearance in the last one. In all there was both interlobular and interacinar increase of interstitial connective tissue of varying degree. In one case only was hyaline change found in the islands. In the last case the examination of hundreds of sections showed no trace of the islands beyond small collections of connective tissue. Otherwise the pancreas in this case showed only insignificant changes. Herzog looks upon the findings in these five cases as being in favor of the view which regards the islands of Langerhans as producing an internal secretion necessary to the proper metabolism of sugar.

Zur Normalen and Pathologischen Morphologie der Inneren Secretion der Bauchspeicheldrusen.—Ssobolew (*Virchow's Archiv*, May 3, 1902-). After ligature of the pancreatic duct Ssobolew found that in rabbits, cats and dogs the portion of the glandular parenchyma connected with the duct became atrophic but the islands of Langerhans remained preserved. A similar result was obtained by Schultze. From these experiments it may be argued that the islands are entirely independent of the portion of the gland connected with the duct. On the other hand Mankowsky has had results of an entirely opposite nature; he found after the ligature of the duct that the islands likewise were destroyed, and he reached the conclusion that the islands were connected with the duct. Ssobolew further transplanted portions of pancreas beneath the skin, and found after fifty days that the islands were well preserved while the glandular parenchyma was atrophic; one hundred and thirty days after transplantation there was atrophy of all the structures of the gland including the islands. Portions of these were however remaining, showing that they possessed a greater power of resistance than the glandular epithelium. Investigation of the islands with respect to their secretory activity showed that in the cells of the islands granules resembling zymogen granules were present, the largest of the granules lying at the periphery of the cells. The number of these granules was found to be greatest in state of hunger, and became diminished if any demand was made upon the organism to use up a certain amount of carbohydrates. This is in accord with the known fact that in loss of pancreatic function in diabetes the organism loses the power to assimilate and use up the sugar brought to it in the food. The embryological study of the pancreas shows that the islands are large and well developed at an early period of fetal life. Their size, and the fact that they contain numerous mitoses would indicate their independent origin and function. Ssobolew examined seventeen cases of sclerosis of the pancreas with atrophy and one case of lipomatosis. As a result of these examinations he found that in cases having no diabetes the islands were unchanged, but in the study of the organ in fifteen cases of diabetes and one case of acute glycosuria he found that in thirteen out of the fifteen cases there was a diminution in number of the islands even to a complete disappearance in certain cases. The remaining islands showed changes of a greater degree than those seen in the digestive portion of the organ. The disappearance of the cells of the islands is apparently due to a simple atrophy. From his experimental work and from the changes found in the islands in the cases of diabetes the conclusion is reached that the islands of Langerhans are independent of the digestive portion of the pancreas, and possess the function of an internal secretion concerned in the metabolism of sugar.

Adrenalin Glycosuria and Other Forms of Glycosuria Due to the Action of Reducing Substances and Other Poisons on the Cells of the Pancreas.—Herter (*American Medicine*, May 10, 1902) has shown that the subcutaneous, intravenous and intraperitoneal injections of adrenalin chloride into dogs were almost invariably followed by glycosuria. Peritoneal injection produced the most marked glycosuria, as high as ten per cent or more, the glycosuria lasting twenty-four hours. It was further found that the local application of adrenalin in small quantity to the surface of the pancreas produced glycosuria. It was shown by experiment that the glycosuria was not due to vascular disturbance. It was then found that other reducing substances such as potassium cyanide, ammonium sulphide, carbon monoxide, et cetera, constantly produced a glycosuria when used similarly to adrenalin. On the other hand nonreducing substances produced no glycosuria whatever when used in the same manner. The conclusion is reached that the reducing substances produce glycosuria by the disturbance of pancreatic function due to the removal of oxygen from the pancreatic cells.

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ORIGINAL ARTICLES.

ADDRESSES.

THE CARE OF THE CONSUMPTIVE POOR, WITH ESPECIAL REFERENCE TO THE ESTABLISHMENT OF A CONSUMPTION HOSPITAL IN CONNECTION WITH THE COUNTY FARM.*

BY HERBERT MAXON KING, M. D., GRAND RAPIDS, MICHIGAN.

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Ladies and Gentlemen:

A FEW days ago your Vicepresident honored me with an invitation to address you upon this occasion on the subject of the care of the consumptive poor, more particularly as it affects our own community and especially with regard to the establishment of an institution for this purpose in connection with the County Farm.

I take it as a most signal and favorable sign of the times, that public interest outside the medical profession is at last aroused to bestir itself in behalf of this fight against the most dread enemy of the physical well-being of the human race. In this fight we may be quite sure that we are not merely indulging a fad of the day. The question has come to stay with us until it is answered, and the problems which but a few years ago seemed insurmountable are already fast being solved, in improved sanitation, public and private institutions for the care of this class of the sick, and, in what is more important still, a general education in the nature of the disease itself.

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*Delivered at the Annual Meeting of the GRAND RAPIDS CHARITY ORGANIZATION SOCIETY, June 13, 1902.

We have learned, first, that tuberculosis is an almost universal affliction. We have very good evidence that nearly every individual over thirty years of age has in one part of his body or another an active or latent development of the disease.

Second, that consumption is communicable (where great care is not taken) from the sick to the well, and being infectious is therefore preventable.

Third, that a great majority of consumptives recover and therefore that the disease is curable.

Fourth, that vitiated air, poor food, improper clothing, certain occupations and the indulgence of vicious habits all make toward the development and fatal progress of consumption.

Fifth, that sufferers from all forms of chronic tuberculosis, and more especially from consumption, do recover without change of climate.

Sixth, that therefore climate is not essential, and that good care without climate is infinitely to be preferred to good climate without care.

Finally, we have learned that what this class of unfortunates needs more than they need medicine, is sunlight, proper food, fresh air, rest, pure water, watchful intelligent nursing and freedom from anxieties.

These, together with other facts with regard to consumption, are now pretty generally understood and accepted, not only in the medical profession but among the more intelligent members of society at large. And what has been the result so far of this increased understanding? Let us sum up a few of the benefits which have grown directly out of it.

First, consumption is no longer looked upon as the lurking, mysterious and unknowable foe whose slightest touch is inevitable death. This is, perhaps, the greatest blessing which a better knowledge of the subject has given us. Few, outside the medical profession, may realize the truth of this statement, but one who has seen the desperate hopelessness of the old understanding of this disease give place to the cheerful, sensible and wholesome courage of the later understanding will not question it I am sure.

Second, men and women are living more healthful lives. Dwellings and shops, offices and places of amusement are being constructed with greater attention to light and ventilation (although there is still vast room for improvement along this line).

Third, The public demands that the disgusting habit of promiscuous expectoration be abandoned, and thus lessen the danger of infection by so much.

Fourth, in many countries, and some states of our own country, a system of notification is in force which enables proper authorities to know and guard against danger from local foci of the disease, and to compel proper fumigation and disinfection of the premises, not only after the death of a consumptive but also from time to time during his illness.

Finally, in all parts of the world (except, I am sorry to say, in Michigan) the reare being erected public and private hospitals and sanatoria for the purpose of treating and curing the favorable cases, and educating them to care for themselves and to avoid being a danger to their fellows; and at the same time, supplying an asylum for those more unfortunate cases who are past medical assistance, where they may be removed from unsuitable environments and given such comforts and even luxuries in their last days as surely they could not obtain elsewhere; besides saving perhaps a large family circle an almost certain infection and making it possible for that member of the family, who would otherwise be confined at home in attendance on the sick, to go on with the work of maintaining the family. All this has, of course, accomplished a considerable diminution in the death rate from consumption. But certainly it is no time to rest on our laurels, a prodigious number are still dying in our midst every year as a tribute to this fitly termed "great white plague." Those who continue to live continue to suffer much more than is necessary, and in spite of our added knowledge, new cases are constantly appearing in the community.

But, it has been argued, people must die of something; it would be extremely inconvenient, not to say disastrous, if by eliminating disease, we should thereby bring upon ourselves the consequent congestion of humanity; and, besides that, if the body politic obligates itself with regard to tuberculosis, why should it not by equal right assume the same attitude toward other diseases and infirmities. You have not the time nor I the inclination to carry out the many and various ramifications into which such arguments lead us. But, permit me to say in the first instance, that even the complete suppression of consumption would merely defer death to a more natural age and cause, and thus would occasion no embarrassing congestion of humanity. And in the second place, to call your attention to certian *peculiar* claims which this disease has upon the public conscience.

First, the victims of phthisis, in a large majority of cases, succumb at an age when they should be of the greatest use to the world, that is, between the ages of twenty and forty years.

Second, the consumptive is an invalid compelled by his disease to live within narrow limitations as to occupation and environment for a period varying from a few months to many years, during which time he or she is not equal to entire self-support and is consequently a burden, which directly or indirectly must fall upon the public any way regarded.

Third, during all this time the consumptive, unless extraordinarily intelligent and well instructed, is a constant menace to the public health, in the shop, in the home, the church, the theatre, the store, whether traveling or remaining at home he carries with him ever the elements of infection.

I beg that this last statement may not be misunderstood. We must not jump from the extreme of carelessness to the other extreme of blind and silly fear. The consumptive who is well instructed and obedient in regard to the disposition of the excreta and the care of the person, is not at all a dangerous member of society. It must be borne in mind that tuberculosis is not communicable in the same sense as is smallpox. It is, indeed, a well-known fact that one is safer from infection of this disease in a well governed hospital or sanatorium for tuberculosis than almost anywhere else.

Of the humanitarian reasons why we should provide for the care and treatment of the consumptive poor I desire simply to bring to your attention two out of a sufficient number to fill a volume.

In the first place it is a rare exception that an individual of this class becomes a voluntary dependant upon charity. We find him struggling along, at first able and willing to work, and thus to pay for rent, clothing, food, medicine and doctor, but by and by it becomes physically impossible for him to work more than half the time. The never too abundant income is cut down to half the amount and he is obliged to face the necessity of reducing the expenditures by the same fifty per cent; rent has to be paid, mouths have to be filled, and, in his belief, medicine has to be taken, and so patent medicine supplants the doctor, and old clothes are patched up for new. Now occurs what I would desire every responsible man and woman in this country to seriously consider. A number of great, good and philanthropic gentlemen, whose names, individually, are often connected with charitable and humanitarian projects, combine to place the price of coal beyond the means of our poor consumptive who is struggling for existence on a fifty per cent basis of resources, and at the same time that food which is his best hope, and one of his most essential medicines, *beef,* is placed practically beyond his reach by a capitalist combination which is a disgrace to this republic and to our vaunted civilization. So long as conditions in our government render it possible for individual or combined capital to increase the cost of the necessities of life merely to gratify a sordid ambition so long indeed will there be a field for the reformer, I might almost say an excuse for anarchy. Giving libraries, or endowing hospitals will neither compensate nor condone the crime of bringing distress into the homes of the poor in the form of sickness and starvation.

Only a little later, our consumptive is obliged to cut down his labor still more, his wife is now obliged to assist in the bread winning, and he is deprived of that care and personal attention which formerly she was able to extend him. Finally, to cut short what is always a painful story, the patient is no longer able to work at all, cheaper and you may be quite sure, less healthful apartments are sought and our patient goes to his bed in a dark, stuffy, inside room of a tenement, where perhaps he lingers for months until death at last relieves him, not, however, until every member of his family and more intimate associates have been subjected to infection in a manner and on a soil where it is most apt to take root and develop.

This is one reason, it seems to me, why plain and imperative duty to our fellowman demands that we should organize to lend assistance to these unfortunate cases.

When the doctor prescribes rest, food, and sunlight for his patient, it seems simple, and does not at first strike one as being an expensive treatment. But when one considers that rest means, change of occupation, if not abstinence from work altogether, and that to achieve success in treatment this régime must be kept up for a period of months, at a time when the patient does not feel sick, but on the contrary is convinced that he is able to work, one will see that it is a very different matter from prescribing pills and powders and a week's vacation.

Now the second reason why I consider this class of unfortunates to have a special claim upon us is this: While we have institutional facilities for hospital or sanatorium treatment of *every* other disease, which prevails or may prevail, we have not in Michigan, so far as I have been able to learn, a single public or private institution for the treatment and care of the consumptive. Whether he be rich or poor the doors of all general hospitals and sanatoria are closed against him. Not even in the "pesthouse" is there provision made for his admittance. This is bad enough even as it affects the well to do, but have you ever thought of the suffering, the privation and infinite hardship which this condition entails upon the poor? It certainly would seem that this reason alone should suffice for us, and that no other argument should be necessary to determine a prompt movement toward the establishment of some place of refuge for these unfortunates.

Just a word more in generalization before we pass to the specific subject of this address. What can we do toward abating this scourge, and what can we do toward alleviating the suffering of those already afflicted? Both problems we are bound in all humanity, and for economic reasons as well, to face, and if it be possible to solve.

First of all, we must remember that an ounce of prevention is worth a pound of cure, and though we might erect and maintain enough special hospitals and sanatoria to care for every consumptive in Michigan, our task would still remain but half accomplished unless we were to employ every means in our power to prevent its *development*. To do this it should be made criminal to build unsanitary tenements, to maintain poorly ventilated and badly lighted shops, the law against the employment of child labor should be more rigidly enforced, sanitary inspection of all public, and if need be, private institutions, whether commercial, manufacturing, educational or residential should be thorough, systematic and frequent, and the standard of sanitary inspectors should be raised. Our public schools should fall under this improved inspection which should be conducted with the subject of tuberculosis ever in mind. Laymen as well as physicians should preach fresh air, sunshine, pure water, healthful food and proper exercise first, last and all the time. Those vocations which conduce most to the development of the disease should be made commonly known, the specific danger minimized and those whose lifework lies in these vocations instructed by means of Boards of Health literature how best to avoid the danger.

You will notice that I use the word "*development*" often instead of "infection" or "contraction" of the disease. My reason is this, as I have already said, it is highly probable that at the present time, *every individual over thirty years of age, dwelling in a community, has contracted a tuberculous infection*, but only one in every three develops evidence of the disease in the lungs and only one out of six or seven dies of consumption. This to be sure is appalling enough, but it proves very conclusively that *more* than the germ is necessary to a fatal progress or even a serious form of the disease. And we, in the medical profession, have come to believe that the relative immunity, enjoyed by those who escape, is due largely to their mode of living, love of pure air and clean water and substantial feeding.

Now, finally, that which demands our most immediate and active attention, is the establishment of institutions for the reception and proper treatment of consumptives. This may be said to comprise several classes, in some respects quite distinct from each other, namely:

(a) *Sanatoria* for the treatment and *education* of curable cases of the disease, which should be established and partly maintained by the state, or by private endowment, in the most salubrious and convenient localities and should, for various good reasons, not be put upon a wholly free basis. For a model of what such state institutions should be, I refer you to the splendid Massachusetts Sanatorium for Consumptives at Rutland, Massachusetts, which has now been in successful and gratifying operation since 1897; and for an example of what a private endowment may achieve in this direction, I refer you to that pioneer institution of this character in America, DOCTOR TRUDEAU'S Adirondack Sanitarium at Saranac Lake, New York.

(b) Special hospitals for the cure of the more advanced cases. Such institutions should, in my opinion, be entirely free, and supported by the county or municipality. They should be located in the suburban districts and should if possible have an environment of open country, a southern exposure and a protection from prevailing high winds. In both these classes agricultural facilities should be obtainable where those whose condition permitted might be employed during the convalescence in an occupation most favorable to their peculiar limitations.

(c) Seaside and lakeside summer homes for scrofulous and sickly children, where during the heated term, they may enjoy those inestimable advantages to growing children, pure cool air, frequent bathing and nourishing food. Such institutions offer a broad and splendid field for private benevolence. Many little people, who otherwise would doubtless succumb before they reached an age where their contribution to human toil might pay back into social coffers some of the cost of their rearing, would through such a charity be saved to become valuable citizens of the communities in which they lived.

(d) Lastly, Agricultural Colonies should be established on state lands, encouraged and partly supported by the state, where those laborers in factories and shops, whose disease has been arrested might find a more healthful life and occupation in the country.

You must not imagine that the carrying out of every one of these plans by the state, county, municipality and individual would materially affect the general taxpayer in a financial sense. For, of course, this is the question which will arise in the minds of most who listen for the first time to such a project. Over and over again it has been *shown* that such movements as are suggested here have resulted in actual financial gain to the state. Ask Massachusetts! and she will tell you that her sanatorium has been a *saving* to the state. Such movements display the best and most farseeing public economy. If you stop to think, it really amounts to a judicious diversion of expense from a *charity* to an *investment.* For the consumptive *is supported* somehow as it is, and in the most extravagant manner so far as results can show.

I will not weary you with further general arguments. All that I have said is beyond mere theory, it has been in the air for several years. It has been demonstrated time and time again in Europe and America, yes, even in Asia and Africa; it has been repeatedly discussed in medical societies, charity organizations, state and municipal councils by all sorts and conditions of people, so that, in championing this cause when the time comes you need not fear that you are endorsing an untried cause which may seriously embarrass you either individually or as a community.

Now, the difficulty with which we have to contend, it seems to me, does not lie in a public parsimony. Communities like individuals are willing to spend their money when they can be convinced that the means suggested serve the end desired, but there is a very natural shrinking from taking the *initiative* in any operation of the importance and far-reaching significance of the movements under discussion. That, however, is no longer a valid excuse for our inactivity. Ever since **Brehmer** demonstrated the success and the practicability of the sanatorium method as applied to tuberculosis in the little town of Goebersdorf in Germany in 1859, those methods have again and again been proven eminently satisfactory from an economic as well as scientific and humanitarian point of view. Those methods with a few modern improvements and modifications we urge upon your thoughtful consideration today, not as new ventures, but merely the following out of excellent examples.

But to come to the point of this address, the question of the establishment of a special hospital for the care and treatment of the consumptive poor, in connection with our County Farm. Until quite recently, I thought this idea was original with me, but on the occasion of the National Conference of Charities and Corrections in Detroit, a few days ago, at which I had the pleasure and honor of taking part in the discussion of DOCTOR KNOPF'S excellent paper, I proposed the establishment of such hospitals by the counties, based upon observations which I was recently given the opportunity of making at our Kent County Home. Following my discussion, a member of the Conference from Denver, to my surprise and gratification, informed us that such an institution had a few years ago been established near Denver and was flourishing in a highly satisfactory manner. I have applied for official information upon the subjeet which I regret I cannot present to you this evening, but the fact that such a plan has been tried and found successful in Denver is a practical proof of its feasibility.

As the question affects us here in Grand Rapids and Kent county no less than in other communities let us examine first, as to our necessities in this relation; second, as to the resources which we have at hand to meet these necessities; third, as to cost, and question of ways and means, and conclude with a few general considerations.

Details are for our present purpose unessential and I will spare you in that respect as much as possible.

As to our necessities. If we had institutional facilities for caring for twenty patients at a time, I think that would be sufficient for our present requirements. The average stay of a patient in such institutions is between three and four months. Thus you see we should be able to care for sixty patients in the year. To accomplish this, a double pavilion hospital building would be requisite, one pavilion for males, the other for females, each to comprise a ward and two single rooms; the latter for such cases as for one reason or another required isolation. These pavilions should be connected by a central structure, comprising the necessary administration offices, kitchen, diningroom, laboratories, bathrooms, apartments for nurses and resident physicians, et cetera. the whole to be faced by a wide and suitably sheltered veranda, which, being the means for carrying out the "open air cure" is one of the most essential features of such an establishment. The working staff should consist of one or two visiting physicians, appointed for their peculiar fitness for such work, whose duty it should be to make regular weekly or semiweekly visits at the hospital, and have medical supervision over the patients and the institution; a resident house physician, whose duty it should be to carry out the orders of the attending staff; four or five properly trained nurses and a steward.

As to resources. Kent county possesses already a suitably situated farm of one hundred forty-two acres, only a portion of which is at present being worked. The surrounding country is attractive and healthful and the water supply excellent. For obvious reasons, it would be neither desirable nor expedient to erect our hospital immediately contiguous to the county house, but a very appropriate situation lies, I think, on the west side of the gully, sufficiently remote from the present buildings to separate our patients from the odious features of the Poor House, and still near enough for all profitable intimacy. The live stock now maintained on the farm could be added to without much additional expense, and additional areas of the farm placed under cultivation and "worked" by patients whose condition permitted of such labor. Thus the agricultural feature of which I have spoken as being a desirable one in connection with such hospitals would be already at hand. I think we can safely assume that we have in our County Farm, a very favorable nucleus for the plan proposed and, this with a rich and industrious county back of it, we may regard as our available resources.

As to cost and the question of ways and means, I am of the opinion after giving the matter some thoughtful study, that the initial cost of the plant would be between ten and fifteen thousand dollars. Of its maintenance after foundation, I have more definite knowledge, gathered from the experience of several established institutions, notably the Adirondack Sanitarium, the Massachusetts Sanatorium and the Loomis Sanatorium Annex (all of them semicharitable institutions). On the basis which I have outlined and running at full capacity the cost of maintenance would amount to about eight dollars per week per patient, for food, lodging, nursing and medical treatment. This would mean then a yearly appropriation of between eight and nine thousand dollars, or less than six cents per year for each individual in Kent county.

And now as to ways and means. It seems to me that there is but one dignified and just manner of going about such a business, and that is for the county to make the appropriations necessary and supply them by regular taxation. Every taxpayer in the county should, and *I know* would, feel it not only his duty but his proud privilege to be a party to such an enterprise.

Such appropriations as this plan calls for, would make but an infinitesimal pro rata increase in our taxes, and the substantial and permanent basis upon which the institution would thus be placed would be an additional credit to the community. Indeed in a county as prosperous as that of Kent the question of ways and means is perhaps the least important to be considered. The objection which first arises will be due to a misconception of the proposed plan. It will be claimed and with good reason that the consumptive who has exhausted his means and is in reality dependent upon charity is still unwilling to become an inmate of the "poor house," and we should not blame him. It must be distinctly understood from the start that such a hospital as is here proposed is not to be a department of a home for the indigent, but merely to utilize for its purposes a portion of the county lands, and such other property as may be required for the purpose and not otherwise employed. It should be under the supervision of a special committee of the County Commissioners and not that which controls the Poor House. In short the utmost tact should be exercised throughout the whole process of establishing such an institution to save it in the first place from disastrous odium and in the second from no less undesirable "pothouse politics."

In conclusion, let me suggest that the present county authorities who have it in their power to initiate and promote such a beneficent undertaking toward the establishment of *the first county hospital for the consumptive poor in Michigan*, have thus an opportunity for bringing both credit and honor upon both themselves and the county which they represent, with which nothing else that they may accomplish in the whole term of their office can compare in importance.

Let me suggest also that this charity Organization Society whose influence in such matters is far-reaching and potent, cannot lend its endorsement to a more worthy project, nor one more pitifully appealing to it for aid.

There is no problem which confronts us today of such profound importance to the public health as this one of tuberculosis. All are agreed that it is a question demanding immediate and thoughtful consideration. It is true we cannot wrestle with it in all its phases at once, but at least, we can make a *beginning* and that without any serious risk of going wrong or of embarrassing our county revenue,—then ladies and gentlemen, for the sake of humanity, for the sake of the public health, honor and credit, as well as for the sake of economy and good business management, *Let us act.*

MEMOIRS.

SURGICAL OBSERVATION IN INDIA.*

BY HAL C. WYMAN, M. S., M. D., DETROIT, MICHIGAN.
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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

WITH some hundreds of millions of inhabitants, with a climate presenting wide variations of heat and moisture, a land teeming with wild animals and luxuriant vegetation, it is not strange that India should offer the medical student an immense field for clinical research. If disease bears any relation to man's environment, in the vast plain, mountain and river systems of India there is variety enough to favor the development of every ill known to human tissues. There are found in India people who live and thrive and fade and die, under any and all kind of foods and drinks, and who wear all sorts of clothing, and who live in habitations of every description known to human invention. Physicians living there will tell you of many strange diseases which are limited to people under strange conditions of environment and that native medical art copes with these maladies with more or less success by purely empirical methods.

Surgery is old in India. The treatment of broken bones and healing of wounds was conducted systematically long before the advent of Europeans in Indian affairs; and now, notwithstanding English influence is felt in every province, native methods of practice are still in vogue and satisfactory to the people. It is only in localities where European missionary, civil and military hospitals have been established that the natives take kindly to the innovation of modern medicine and surgery.

There are many skillful medical men in the Indian missionary, civil and military services. Hospitals are equipped as well as they are any where in Europe. I witnessed surgical operations in the hospitals of Bombay, Indore and other great cities that were performed as quickly and as neatly as in England.

Nearly all of the surgical work done upon natives was for ills that had absolutely prostrated the patients. In that country as long as the sick man can get about and keep his feet, he is very reluctant to submit to a cutting operation. I visited some hospitals that were conducted by native physicians who graduated from one of the four medical colleges of India, namely Bombay, Calcutta, Madras and Lahore. In those schools modern surgery is taught with due respect for all details. The students are fine anatomists and are apparently deeply in love with their work. But they seem to develop a love for the didactic side of the profession and develop wonderful skill in describing heroic features of practice.

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* Read before the WAYNE COUNTY MEDICAL SOCIETY, September 12, 1902.

In the hospitals managed by these men I heard much about wonderful operations for the restoration of lost noses and ears, the removal of huge calculi, and the union of wounded intestines, but saw none of them. The patients were either all dead or gone to the villages. At one hospital the native surgeon, a man of perhaps sixty years, a graduate of Grant Medical College, Bombay, found me interested in cases of abscess of the liver, and talked in good English for more than an hour of case after case that died just after he had completed a brilliant operation with a trocar—evacuating quart after quart of brownish pus. He seemed to glory in describing the fatalities of his practice. Then he took me through his wards where I found many cases of tuberculous joints and rectal fistula, that in this country would require operation, and some cases that I thought had hepatic abscess, but no preparations were under-way to operate on them. As I left that hospital one of the assistant physicians, also a native, followed me to my hotel to tell me that all the surgeon-in-chief had told me about operations for hepatic abscess was false. "That man," said he, "knows only talk." "Once in a while the P. M. O.—principal medical officer of the civil district—an Englishman, comes around, and he operates." The disposition of the native surgeon to exhalt his importance and indulge his fancy and oratory must be carefully kept in mind. Another native hospital surgeon told me that he had removed the left lobe of the liver in a case of stab wound; and his assistant told me later that it was only a blood clot that was removed.

As a rule, all the hospitals that I visited were presided over by English or Canadian medical officers, and they invariably truthfully aided my investigations. The Canadian institutions were primarily missionary establishments. Some of the medical officers were women who devoted hours daily to the care of female and children patients. There were many cases of uterine subinvolution, laceration of cervix uteri, prolapsus, vaginitis, proctitis and fistula, all of which were treated in accordance with approved modern methods. Tumors, both fibroid and cystic, occasionally appear in the hospital practice, but not so often as in European countries. In the missionary dispensaries and hospitals in the famine districts many of the patients suffer from what I would call "famine thrush," and aphthous ulcers of mouth, stomach and intestines. The depraved nutrition incident to the gradual deficiency of food in famine cases seems to favor the growth of the *oidium albicans.* I also saw many aphthous ulcers of rectum and anus in dysenteric cases.

At the Jeejeebhoy Hospital in Bombay there is a large operating room with six operating tables all in action at the same time. About two hundred medical students occupy elevated benches at one end of the room. They are nearly all native Pharsees and are intently interested in the operations going on silently before them. A room adjacent is used for chloroforming the patients. The only sounds heard are the bare feet of the native orderlies shuffling over the paved floors as they carry the patients to and from the operating room. During my visit not a word was spoken by the operators to the students. It was purely a sight clinic. Most of the operations were on the limbs and joints. There were some tumors and some hernias, but not much abdominal surgery. After two hours watching this silent spectacle and students and patients had all quietly departed, leaving the great room empty and bloody, but for a group of surgeons washing up at one of the sinks which ranged around two sides of the room, I inquired of one of the gentlemen about the intestinal surgery which appeared for operation. He told me that they did very little of that sort of operating in India, for the reason that the cases were all too far advanced before coming to the hospital. When attacked with inflammatory affections of the peritoneum, the natives commonly employed native medical men who hold them until too late for surgery to accomplish anything. There were many cases of tuberculosis of the bones, joints and glands, more than we find among the same number of people in this country.

But to me the most striking feature of all the sick was dropsy and anasarca. I often asked "Is this nephritic, organic heart or liver disease?" and was often answered "No; they are lymph cases—filariasis, elephantiasis—and are more or less amenable to treatment by rest, good food, more air, and better hygiene. Medicine helps some and surgery does much good in the cases limited to scrotum and extremities."

To amputate the scrotum when enlarged to the size of a half bushel by lymphangiectasis is a tedious and bloody operation. The dilated lymph channels are limited in a case favorable for operation to the tunica vaginalis and parts exterior to it. There is a great growth of connective tissue in walls of lymph vessels in these cases and to maintain it, there is increase in size of all the blood-vessels. Arteries, normally not larger than a thread, are grown bigger than slate pencils. They must each in turn be securely ligated as they are divided. But they are so numerous that time would not allow the completion of the operation before a fatal hemorrhage would ensue if the surgeon did not resort to some means of compressing before cutting them. He commonly uses an elastic bandage drawn tightly across the perineum and over each crest of the ileum. This controls the hemorrhage so that a safe and efficient operation can be performed. The genital organs are carefully conserved because they are not diseased but only encumbered by the exaggerated lymph tissue and inflammation. Flaps must be made sometimes from skin of groins and inside of thighs to cover them in and restore them to normality. Some of the cases of elephantiasis are limited to the skin so that it hangs in great ulcerated folds about the leg or thigh, and operations for their cure are practiced with due regard for antisepsis.

I saw nothing in India that was not infected. Pus was everywhere that tissues were open and exposed. The surgeon there seldom gets the healing without suppuration that is found almost universally in practice in America. Mortality rates are high. I found little to encourage one to build a practice there even if he could persuade the natives to consult him early. The bites of insects reach and infect the native because of his lack of clothing. His nutrition is usually bad because his food is poor and his shelter overcrowded and insufficient. The masses seem a helpless lot. They give their lands at night to the wild beasts. Jackals and tigers roam the fields from dusk to dawn. Cobras and vipers lurk everywhere unlimited and kill people every day. The government builds hospitals, practices surgery and maintains a great research laboratory where officers earn their salaries experimenting with cholera, plague, and cobra poison. There were more than one hundred vigorous cobras, each confined in a little tin cracker box cage at the time of my visit to the laboratory. There were also quantities of the dried, greenish, scaly-looking venom of the cobra, which had been taken from the snakes by letting them bite their fangs and eject their poison upon a saucer held by a trained native assistant. There were dead rabbits, dying rabbits and live ones that had been injected with venom of varying degree to make antivenene. I heard of one case, a child, bitten by a cobra, about five minutes before it was brought to the laboratory, where it was treated with Calmett's serum, that survived the bite of a cobra. But research work in the severest maladies promises to do more than has been done in the past; medical minds of India are hopeful of a better future in the healing art as the masses become better fed and housed.

A MODIFICATION OF FARLOW'S TONSIL PUNCH.

By EMIL AMBERG, M. D., Detroit, Michigan.

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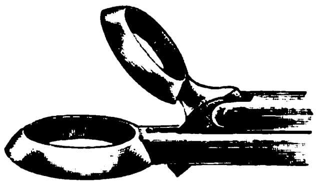
THE tonsil punch represented by the accompanying illustration is a modification of Farlow's tonsil punch. The jaws are oval. This oval shape is of advantage when the space is too limited to permit of employing the circular-shaped jaws. A punch with oval-shaped jaws was made for me by an eastern firm early in 1897.



PUERPERAL ECLAMPSIA.*

By HERBERT E. RANDALL, M. D., Lapeer, Michigan.

[Published in The Physician and Surgeon exclusively]

DOCTOR FRANCIS DELAFIELD, of New York, in the "Twentieth Century Practice of Medicine," informs us that he has found the following conditions in patients dying of puerperal convulsions:

(1) Normal kidneys.
(2) Dilation of pelvis of kidneys and ureters.
(3) Acute degeneration of the kidneys.
(4) Acute exudative nephritis.
(5) Acute productive nephritis.
(6) Chronic nephritis.
(7) A condition, even in young women, of well-marked disease of the cerebral arteries.

The most important theories of the cause of puerperal eclampsia are: (1) pressure of the gravid uterus on renal veins may cause a chronic congestion of the kidneys; (2) pressure of the uterus on the ureters may cause the urine to be secreted against a high pressure and the kidneys are unable to get rid of a proper amount of excrementitious substances; (3) the kidneys are obliged to excrete waste products not only from the mother but also from the enlarged uterus and fetus and the extra work they are unable to perform (in twin pregnancies the disease is more common); (4) it has been found in some cases that before the convulsions there is a diminution in excrementitious substances in the urine and after the convulsions an increase in these products; (5) that for some reason these patients have cerebrospinal congestion; (6) that for some reason there is in other patients the opposite condition—anemia of the cerebrospinal system; (7) that the attacks are epileptic attacks due to irritation of nerves in the pelvis; (8) that the enlarged uterus acts as an irritant to the vasomotor nerves and causes a contraction of arteries throughout the body; (9) that the enlarged uterus causes irritation of the nerves supplying renal arteries and causes an anemia and degeneration of the kidneys; (10) that there is a toxic substance from some unknown cause which causes the nephritis and cerebral symptoms; (11) the theory that puerperal eclampsia is due to an organism which causes acute infectious nephritis; (12) that it is due to disturbed liver function causing an incomplete oxidation; (13) that in calcareous districts, as in Belgium, Sweden and Ohio, the disease is more prevalent; (14) that it is due to some derangement of the thyroid gland. With a view of showing that the major symptoms of eclampsia are due to a change in the thyroid secretion, DOCTOR H. O. NICHOLSON points out that urea under thyroid treatment is increased; that the general edema of eclampsia is of a myxedematous nature, et cetera; and that iodid of potash is almost a specific in the albuminuria of pregnancy due to the iodin absorption by the thyroid gland changing the metabolism of the body.

It will be noticed that in the various theories advanced, the idea common to most of them is that there is some poison in the system which causes the symptom. All theories agree that there is a toxemia while there is vast difference of opinion as to the nature of the poison. The keynote of the treatment, therefore, is elimination, stimulation of all the emunctories of the body before and during the convulsions. The knowledge of the exact etiology, however, is wanting.

A physician who accepts the charge of a case of pregnancy should always be on the lookout for the first signal of the dreadful disease. How may he know that the case is liable to be one of eclampsia? It is very rare for a convulsion to come unheralded. The careful physician who makes it a rule to examine the urine of his pregnant patients for albumin, casts, and the amount of urine passed in twenty-four hours is not apt to be caught napping. If albumin is found in the urine or the amount of solids greatly decreased, suspicion should at once be aroused and active treatment instituted. There are cases, unfortunately, in which dangers are not foreshadowed in abnormal urine. Headache across the brow or pain on top of the head which is peculiarly excruciating, depressed spirits, variability of appetite, dryness of skin, and more or less edema should instantly put the physician on his guard. Eliminative treatment must be commenced at once. The bowels should be kept thoroughly open. The skin must be kept active and wool should cover the entire skin. Mild diuretics and drinking of much water should be encouraged. The physician should bear in mind that he is dealing with an affection in which the mortality is about twenty-five per cent. He must also bear in mind that the number of convulsions has no relation to the amount of toxemia; that the convulsions are simply symptoms of a diseased condition; that the woman having the smaller number of convulsions does not necessarily recover more rapidly than one who has had a larger number of convulsions. The poison must be eliminated to save the patient. An easily assimilated diet, not irritating to the kidneys, must be insisted on.

This being the treatment before the convulsions, what is to be done if convulsions have already taken place? Knowing so little of the exact nature of eclampsia, the convulsions must be controlled. Up to this point medical opinion seems to be unanimous, but from this on medical men may differ in their opinions. For the attacks themselves, chloroform should be administered if the attacks are severe, although there are objections to its use. DOCTOR ALLAN does not think it is an advisable remedy generally. REMY (*Rev. Med. de L'est.*, January, 1901) believes that it may make subsequent fits more severe and might in perturbed conditions of the nervous system cause what is known in surgery as primary syncope. In regard to morphin being used to control convulsions, its physiologic action should be borne in mind. Morphin decreases all of the secretions of the body except the breast and skin, the latter it increases. DOCTOR TYSON advises against the use of morphin. He says the parenchymatous and tubal nephritis cases bear the drug tolerably well but those of the interstitial form do not. If I had to use morphin, I should use it with the same precaution that I would use it in any case, watching out for idiosyncracies. If the patient is delicate, and symptoms and cyanosis but slightly marked, chloral may be used but the bromides are preferable in these cases. Cyanosis would seem to be the best guide to phlebotomy. The more severe the cyanosis, the more imperative the venesection. It is certainly rational treatment in the plethoric and full-blooded. Venesection was the routine treatment in Guy's Hospital before 1868 and the mortality was thirty per cent. Since then it is twenty and one-half per cent under treatment by chloroform. Venesection is a valuable measure in a certain number of cases; its routine practice is unjustifiable but when used with judgment it is a very valuable aid. A thing much lauded to take the place of venesection is veratrum viride. It is of doubtful value. It should never be given in the asthenic cases with feeble pulse and pale face. Some physicians, however, place great confidence in its efficacy. *The Therapeutic Gazette*, for August, 1901, publishes many replies from leading obstetricians in the United States in regard to its value. It may in certain selected cases take the place of venesection. If after venesection the pulse returns to its former condition of high pulse and tension it might be used instead of another venesection.

If medical means fail, and unfortunately they do in a small minority of cases, resort must be had to surgical procedure. In these cases the cervix will be found rigid and very hard to dilate. Caesarean section is uncalled for unless there are obstacles that cannot be overcome by instrumental delivery through the natural passages. The same indications should guide now that would direct if the woman did not have eclampsia. Dilatation of the cervix by finger, on account of rigidity of the os, succeeds in but a very few cases. Dilatation can only be accomplished, if the case is urgent, by steel dilators and by Barnes water bag. This procedure by immediate delivery of the child is the popular method of the day. Dilatation must be done with care and a reckless dilatation of the os may cause uterine rupture and a dragging of the fetus through an imperfectly dilated os may not only cost the life of the child but may cause a profound shock to the mother. Cervical incisions of Duhrssen may be done if dilatation points to tear. It is better to have a clean, straight cut than a jagged one. When labor has commenced and the upper part of the cervix is effaced, carrying the circular artery with it, the operation is made a much simpler one. A careful dilatation will cause the supravaginal cervix to disappear. A modification of this method, when more time can be had, is to dilate slowly and pack the cervix with gauze and wait for a few hours and then to dilate and repack. This method should be used if possible, that is, when more time may be taken. Cause as little injury to your patient as possible. Remember that in all things strict sepsis and antisepsis must be observed. It is very rare for convulsions to cease before delivery. The moment a woman is delivered, the chances for recovery increase. The danger at this time is postpartum hemorrhage. Uterine venesection may do much good but a close watch must be kept on the patient and appropriate means taken if the bleeding is too severe. In ninety per cent of cases the convulsions cease after delivery. The mortality of postpartum eclampsia is about seven per cent and we have to resort to purely medical means. If the child is premature and alive use the incubator as in an ordinary case.

The convulsions of eclampsia resemble epilepsy more closely than any other disease, the cry only being absent. **Fere**, in the "Twentieth Century Practice," says: "If we inquire closely into the antecedents of patients attacked by eclampsia, whether during scarlatina or during pregnancy, or at moment of delivery, we can in many cases discover a neuropathic hereditary taint or we may learn they have previously suffered from convulsive seizures of an epileptic form during dentition, gastrointestinal disturbance and exanthematous diseases. It may be replaced subsequently by ordinary epileptic fits. . . . . I have observed epilepsy become definitely established after puerperal seizures. Finally the study of the descendants of eclamptics is no less interesting in this respect."

A few medical measures should not be passed over in this article. Pilocarpin is a dangerous drug in the best of hands. F. S. **Newell** used this drug in fifty-six cases and five died of pulmonary edema. In some cases dangerous edema of the glottis and lungs have occurred. The hot pack is very useful in promoting a free action of the skin. A very useful appliance can be fitted up in any home by using a tea-kettle and a rubber tube, passing one end of the tube under the bedclothes. Saline injections, subcutaneous and rectal, have a special value in eclampsia, diluting the poison in the blood, increasing the flow of urine and acting as general stimulant. Nitroglycerin if given daily relieves the headache and by its prompt action on the circulation relieves the high tension and quiets the nervous system. The recently advanced theory of **Nicholson**, that some derangement or disease of the thyroid gland is the cause of eclampsia, if proven true, makes the thyroid treatment the rational one. It might perhaps be well to give it a trial.

As to recurrences, the literature on the subject is very meagre. I know of but one case wherein recurrence has taken place. The German literature is the only one that I know of that deals with this subject. **Goedecke**, in *Zeitschrift für Geburts-*

hülfe und Gynecologie reports four hundred and three cases of eclampsia. Three cases had a second attack and one case had three attacks. He quotes the German authorities who have seen two or three cases of recurrence of eclampsia in their practice (OLDHAUSEN, three recurrence cases; GOLDBERG, two cases; DUHRSSEN, three cases). I think perhaps one reason for so few recurrences is that women are not willing to run the risk of a second pregnancy. But for some reason or another recurrence of eclampsia in the same patient is very rare; for some reason unknown they seem immune to a second attack. The kidney trouble I believe to be a result and not a cause of the eclampsia. Until further studies shall show us the exact pathology and etiology we must treat it on broad general lines.

SEPTICEMIA AND THE CURETTE.

BY HARRY PLYMPTON, M. D., BROOKLYN, NEW YORK.

To attempt to break up an old established custom in any line of life is, at best, a thankless task, and one likely to call down harsh criticism upon the head of the daring iconoclast. To attempt to uproot old prejudices existing in favor of a certain line of practice in surgery, and diametrically oppose such practice, is to invite from some, adverse criticism of the harshest kind. The only recompense for this is a logical refutation of or concurrence in the argument advanced, on the part of other members of the profession. This latter is what I hope for, and if I provoke a discussion, or start a line of thought in the minds of half of the readers of this article, I shall have achieved all I aimed to do.

Curetting the uterus to remove fragments of afterbirth or other debris has been taught in our medical schools from time immemorial, and it is firmly fixed in the receptive and retentive mind of every medical student that the first move following any such abnormal uterine condition, is to cleanse the uterus by means of the curette.

That the organ should be thoroughly and aseptically cleansed admits of no argument, but that the work should be done with the curette I deny most emphatically. The majority of cases of death following the decomposition of fetus or placenta in utero, are caused by the use of the curette, and I hold that septicemia may be avoided if a more rational procedure be resorted to. The condition of the uterus containing septic matter is one of great congestion; the thickened walls being coated internally and over the os with a thick, brown, tenacious mucus. The congestion is active, and therefore the more dangerous in the event of the admission of septic matter into the circulation. If the curette is used, denuding the walls of their protective covering, an immediate vaccination takes place with a septic virus, septicemia following in an incredible short space of time (chemical metamorphosis is marvelously rapid in the circulatory system) and death quickly ensues.

If without using the curette, we can remove the septic matter from the uterus without disturbing the mucus covering, and enable the uterus of itself to expel the coating, we shall have taken a long step forward in the treatment of this class of uterine cases.

The uterus, by reason of its congestion, may be made to perform a self-cleansing act by exciting the exudation of the serum of the blood into its cavity, thereby washing itself out, and expelling all septic matter instead of absorbing it. This process of exosmosis is induced by a properly combined alkaline solution at a temperature above 100° and a strict avoidance of bichlorid, carbolic acid, formaldehyd, or any antiseptic of an acid reaction or astringent nature, which would coagulate the fibrin and albumin of the blood. My method of procedure is as follows:

First, The gentle removal of whatever fragments are lying in the uterine cavity, by means of forceps, care being taken not to tear from the walls any adherent piece.

Second, The gentle flushing of the uterine cavity with the alkaline solution (110°), the reservoir containing the fluid being not more than two feet above the level of the hips.

If the flushing could be continuously administered for a few hours (say two or three), the conditions would be more speedily reduced to normal, but the discomfort of the position of the patient (on a douche pan) prevents this, and a flushing once every two hours with one quart of solution is about the limit of treatment. For flushing the uterus, I use a small dilating uterine douche, and as there is plenty of room for the escape of fluid and fragments, there is no danger of fallopian colic or salpingitis. The first flushing is frequently followed by contractile pains and expulsion of any previously adherent pieces, together with much of the mucus. A tablet of one-quarter grain extract of cannabis indica, and one-half grain of extract of ergotin every hour till desired effect is produced will contract uterus and alleviate pain, The bowels should be moved freely, both by enema and catharsis. During the interval between douches, the patient should be kept on her back with the hips sufficiently raised to permit the retention in the vagina of as much of the alkaline solution as it will hold.

The rapidity with which this treatment will reduce temperature, relieve pain, stop vomiting and remove offensive odor is marvelous to one who has not tried it. Sometimes two flushings are sufficient to cleanse the uterus thoroughly; vaginal douches being all that are needed subsequently to complete the work. Uterine congestion is speedily relieved, and the uterine discharge changes from brown, thick bad smelling mucus, to a thin transparent one, accompanied or followed by more or less of a flow of blood.

A reduction in the frequency of the flushings is desirable as soon as a tendency to return to normal conditions begins to be observed, as it frequently will within twenty-four hours. Then simple vaginal douches every three hours with an occasional uterine flushing if symptoms indicate it, will be sufficient. The action of exosmosis (and endosmosis for there is every reason to believe in the absorption of some of the fluid) is what is desired to relieve the existing congestion, as in a bronchitis, pneumonia, congestion of kidney, congestion of any mucous membrane, et ectera, and is the most rational means of restoring to normal condition.

I do not wish to be understood as decrying the use of that most valuable instrument the curette, but only the abuse of it to-wit: its employment under such conditions as make it practically a sharp weapon loaded with septic matter, dangerous beyond the poisoned arrow of the Malay, or the fang of cobra, and utterly opposed to our modern ideas of antisepsis.

2 Macon Street.

ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.*

By C. C. CLANCY, M. D., Port Huron, Michigan.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

In presenting this subject for your consideration I have in mind the purpose of eliciting, through discussion, the trend of thought in respect to the care of diphtheria cases. The aim being to outline, in part, methods of treatment popular with physicians at the present day. In taking up this phase of the question, however, we must not be unmindful of the modifying influence upon contagious diseases of modern methods of sanitation. The application and enforcement of sanitary measures have done much toward lessening the prevalence of these diseases. Probably no other disease has more sorely taxed the resources of the physician than diphtheria, and few have established so high a mortality rate.

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*Read before the Northeastern District Medical Society of Michigan.

The mode of treatment adopted, whether active or expectant, seems to have had but little, if any, influence in determining the results, the percentage of deaths varying mostly with the virulence of the type and the power of resistance in the patient, and it is not improbable even, that many recoveries in severe cases were independent of the particular drugs employed. PEPPER, writing on diphtheria some years ago, stated that every case must be treated on general principles; that there was no specific treatment for the disease; and while recommending and suggesting a line of treatment, his greatest dependence rested upon the theory of generously nourishing and stimulating the patient.

Nearly every drug in the list has at one time or another been called into use in these cases; some of them have gained staunch advocates, but none have proved altogether satisfactory. The multiplicity of drugs employed evidenced their impotency to deal successfully with the disease. As a last resort, when drugs had failed, recourse was frequently had to tracheotomy. The operations saved many from impending death, and the failures were due mostly to delay in its employment, for, usually, the patient was moribund, poisoned beyond relief. Intubation of the larynx was introduced later, and humanity owes much to the author of the procedure. The intubation tube is isdispensable in the treatment of a class of cases met too often by the general practitioner. I refer to laryngeal cases in which the patient has been ill several days when first seen by him. The splendid results following its use in these cases demonstrate its great value.

The most pronounced forward step in the treatment of diphtheria was taken when antitoxin serum was brought to the notice of the profession. It is rational, and it is effective. It is reliable, and it achieves satisfactory results. The toxin condition is neutralized promptly and the claim for specificity pretty well established. Does the serum save every case in which it is employed? Certainly not, but the causes of failure are not far to seek in most instances. First, in asthenic cases, wherein the infection has overwhelmed the patient, little can be expected. Secondly, in cases wherein, for some reason, insufficient quantity of the serum is used, the result is most likely to be negative. But, if administered early in the course of the disease, at the moment the condition is recognized, better results will be obtained than with any other methed of treatment with which I am familiar. A mercurial purgative, strychnia and iron as tonics, plenty of nourishment and sometimes a stimulant, are helpful in the care of the case. Locally, there is nothing in my experience which yields as satisfactory results as peroxide of hydrogen, though I am not very greatly impressed with the value of solvents in any form.

Regarding the length of time that should intervene before repeating the antitoxin, there may be some difference of opinion. When no indication of softening and loosening of the membrane is manifested, and no lowering of the temperature and pulse within eight hours, I give a second dose, and follow with a third later if necessary. If no impression is made within the time mentioned, I am very doubtful of its manifestation later from the initial dose. The advantage or the need for waiting twelve or fourteen hours would seem not very plain. My observations are based on a series of thirty-three cases in which I have used the serum. Of these, a majority were seen early and but one administration of antitoxin was needed; and in several, nothing else was done for the patient. While culture tests were not made in these cases, I believe the clinical symptoms were sufficiently characteristic to satisfy one of the presence of diphtheria. The errors in diagnosis, I think, are more apt to be found in instances wherein the disease is not recognized in its early stages.

I wish to report only one case which I had exceptional opportunities of observing closely. This case was seen several times during the course of the disease by DOCTOR STEWART, and, I believe, he will agree with me that no error in the diagnosis was made.

A boy, aged thirteen years, a well developed athletic lad, was taken ill December 13th—simply indisposed. No chill and no fever. Next morning there was slight swelling and tenderness of the right tonsil. The following day the tonsil had become greatly swollen and also the glands on same side. The dark, glistening appearance of the tonsil suggested pus formation. Besides there was, at this time, a temperature of 103°, with chilly sensations frequently recurring. In the evening, there was marked general edema with temperature 103.8°, and pulse 130 per minute. The next day, the third after his illness began, a small white patch of membrane made its appearance on the right tonsil. Within a few hours the color changed to grey and grew rapidly darker, the membrane spreading so rapidly that in less than fifteen hours it had covered both sides and the vault completely. The patient was very restless and in much distress during this period. Just as soon as the membrane was discovered one thousand five hundred units of the serum were administered and the same quantity eight hours later. A few hours after the second administration the temperature had fallen to 100° and the pulse to 90 per minute. The membrane softened and in twenty hours from the first dose of the serum the patient coughed a piece of membrane measuring three inches in length, one inch in width and varying from one-eighth to three-eighths inches in thickness. At this time, the patient was compartively comfortable and was able to sleep. The temperature dropped to normal in a few hours and nourishment could be given without discomfort. Recovery was uneventful, except for some paralysis of the muscles of deglutition which persisted for ten days.

In conclusion I beg to say that I fear this patient's recovery would have been at least very doubtful in the absence of antitoxin.

SOME OBSERVATIONS ON SMALLPOX.*

BY FRANKLIN BAUCH, PH. M., M. D., LANSING, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

VARIOLA—varus, a pimple, a term applied in ancient times to many eruptions, first limited to smallpox in the epidemics of France and Italy, 570 A. D. It is common to every country of the globe with the exception of certain islands of Polynesia, which are as yet exempt. Besides being called smallpox it has other synonyms. In Germany it is called Blätter, meaning small blister. In the southern states it is frequently alluded to as Cuban itch. In Arkansas it is called Arkansas jiggers. In Michigan it is sometimes designated Ranney-Baker itch.

Smallpox is a highly contagious, extremely dangerous, literally dreaded disease, characterized by violent onset with severe chill, excruciating pain in the back and head, by an eruption of papules, subsequently converted into vesicles and pustules, which leave in drying disfiguring pits or scars, and by a fever which remits at the period of papular efflorescence to increase in the stage of suppuration. The havoc which the disease has made in the past is apparent for it is computed that during the century preceding vaccination one hundred and fifty millions of people in Europe died of smallpox. MACAULAY called it the most terrible of all the ministers of death. The danger to life and disfiguration of the living, especially loss of sight, made it to a degree of which we have now no conception, the most dreaded of all diseases.

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* Read before the CENTRAL MICHIGAN (Lansing) MEDICAL SOCIETY.

Such is a picture of the disease in the past, but today, thanks to modern civilization, sanitation and vaccination, smallpox has lost all its terrors, and instead of being classed with the pest and other plagues of the past, it has become one of the simple contagious diseases, such as scarlet fever, measles and the mumps. Therefore with us smallpox has but historic interest. It is on the road to extinction, and may occur in our day in epidemic proportion only in uncivilized lands. Most modern text-books, if they describe it at all, dispose of it, as of the pest and other plagues of ancient times, in but few words. Smallpox, as we see it, occurs in the modified form known as varioloid. True variola becomes rarer and rarer every year. In many parts of Europe smallpox patients are no longer isolated in pest houses, but are received into the general wards of hospitals, other inmates being protected by, if necessary, fresh vaccination.

Susceptibility to smallpox is almost, though not quite universal. Though it spares no age, smallpox is essentially a disease of childhood, interrupted and postponed by vaccination. Old synonyms, as kinderpocken and barnkoppen attest this fact. Sex shows no real differences. The severity of the disease in negroes may be partly due to susceptibility, but chiefly to neglect of vaccination. One attack confers immunity for the future with rare exceptions, as does also one successful vaccination, with more frequent exceptions. LOUIS XV of France survived an attack at fourteen and died of one at sixty-four. The disease may exist with other infections, as scarlatina, measles and pertussis. It is more frequent in colder seasons because of the closer contact of people at this time and of the concentration of contagions in less ventilated rooms. The contagious principle exists in the skin, whence it is disseminated about the body of the patient. It is also found in blood, but there is no proof that the poison is present in the excretions and secretions.

The contagious principle has singular tenacity of life. It sticks especially to bedding and clothing. It is given off from the body at all periods of the disease, and also for some time after death, at least up to decomposition, but probably not so long as to account for the cases recorded by DOCTOR FRANKLIN when he relates that several medical men who assisted in London at the dissection of a mummy, died of smallpox which it was supposed they caught from the dried and spiced Egyptian. The contagious principle or cause of the disease has not yet been isolated, the microorganisms discovered being only those of pus. Others claim the cause to be a protozoon, but there is no conclusive proof.

COURSE OF THE DISEASE.—*Incubation* varies from ten to fourteen days. During this period, as a rule, there is no disturbance in the general health. *Invasion* is ushered in by violent chill, which is followed by a temperature of 103-4°. The victim staggers as if drunk. Anorexia, vomiting, insomnia, severe headache and, above all, intense pain in back and region of sacrum, constitute the most characteristic symptom of this stage. The pulse rapid. Respiration increases in ratio. All these symptoms indicate the visit of a grave infectious disease. Stress must be laid upon two symptoms which early assume prominence —pain in head and loins—which persist throughout the period of invasion, to become milder only with outbreak of the eruption Infection of mucous membranes shows itself early—sometimes it is seen in spots upon fauces, especially upon soft palate. Inasmuch as the eruption proper does not appear until the third day, especial value is attached to two rashes of earlier occurrence in some cases—one is petechial, the other erythematous. Petechia may appear on the second day in form of a fine macular or spotted eruption in the space known as Simon's triangle, whose base is the umbilicus and apex at the knees. Erythematous eruption has its favorite spot on the inner surface of legs. These eruptions disappear in twelve to twenty-four hours. A distinctive feature of smallpox is the true eruption. The symptoms hitherto described—chill, pain in the head and back —should excite suspicion of the disease in the presence of an epidemic. Occurring in an isolated and individual case, they could not in their ensemble be relied upon to declare the diagnosis of smallpox. The nature of the disease is therefore only finally and fully declared by the true eruption which shows itself on the third day of the disease. The eruption differs from that of all the acute infections. It runs through successive phases of development: First, papular, then vesicular, finally pustular. The pustules dry to form crusts which fall to leave most characteristic scars. In its very first appearance the eruption is purely macular, that is, not elevated above the surface. In the course of the very first day, however, so intense is the inflammation, the macule is thickened to become a papule, so that, as a rule, with its first recognition it seems lifted above the general surface. It shows itself first on the scalp and face, where it is unfortunately always worst; then it spreads downward in quite regular progression over the body, the hands and fingers being favored surfaces. The eruption disappears upon pressure, yielding to palpation a sense of hardness as of shot under the skin. At the end of the first day it becomes elevated, and by the third day is distinctly papular. By the sixth day the papules contain fluid and become vesicles and protrude like half peas. These vesicles are peculiar in showing later a central depression or umbilicus which is most marked just before the vesicles change into pustules. The depression is explained in this way: The vesicle is not a single sac. It is reticulated—many celled—in structure, so that puncture evacuates only part of its contents, and the bands which form the reticula hold down the surface more firmly at one point, perhaps the site of a hair follicle, sweat gland, or firmer strip of connective tissue. In three days more the umbilicus disappears; the vesicle becomes a pustule, which is full, round, and large; the half becomes a whole pea. With the coalescence of pustules dividing walls are broken down, dissolved, and eroded. The eruption becomes confluent. The contents of the pustules now escape, and becoming inspissated and decomposed, cause the peculiarly repulsive appearance and odor of a smallpox patient. Crusts begin to form in three days more. In this process the more fluid central portions evaporate first, to reproduce the umbilicus. The crusts fall in about fifteen days, leaving scars or pits, the result of necrosis of epidemic cells. Hyperemic at first, the scars grow gradually lighter in color and more contracted, and finally remain as disfiguring white spots with radiating lines for years in childhood or for life in adults. Every possible lesion of the eyes, to complete blindness and destruction of the globe, is also seen. A stroll upon the streets in prevaccination days, when these accidents were to be observed at every step, would, were it possible, do more to dissipate the folly of the opponents of vaccination than mortuary statistics. These antivaccinationists are not so wise as the pirates who knew that dead men tell no tales.

The greater or less abundance of the eruption distinguishes certain forms of smallpox. When the pustules stand apart the attack is known as discrete; when they coalesce, as confluent. In the very gravest form of the disease the peculiar eruption is substituted by hemorrhage called purpura variolosa. When the disease is very mild from partial immunity from vaccination or natural immunity it is called modified smallpox or varioloid. Varioloid is a misnomer, for the affection is not like variola; it is variola itself. The disease occurs in this form on account of natural insusceptibility, on account of previous attack, or due to incomplete protection from vaccination. A case of unmodified variola in our day is a rarity; that modified or mitigated variola known as varioloid is still frequently seen. Most of the cases encountered in our day are so mild that the diagnosis concerns differentiation of varioloid from varicella as much as the recognition of variola itself. Varioloid distinguishes itself by abnormalities in every stage of the disease. Vaccination denaturalizes smallpox, deranges the original order of the disease, and effaces its most distinctive features. The difference concerns duration rather than degree. The initial stage is often cut short a day or two. The true eruption as a rule is less abundant, so that it is nearly always discrete. If confluent the face and hands are the favorite places. At first appearance the eruption comes out in spots, which are elevated into papules in the course of the first day. The papules slowly show fluid at their acuminated apices, and become entirely converted into vesicles as before. Here, now, the change is usually observed; the eruption usually stops at this stage, and the vesicles begin to dry up and disappear. They may fill out as in the course of severer forms, their contents may become turbid and opaque, and the vesicle may be transformed into a pustule, but it is plain to see that the force of the disease is spent. Certain pustules may rupture, but the process is limited, and the secondary fever of suppuration is reduced or entirely absent. Pits may be left, but they are few and far between as compared with the lesions of ordinary smallpox. It is more common to find pustules and vesicles, or vesicles and papules in a closer proximity in varioloid than in variola. Desiccation begins on the fifth or seventh day, and most of the papules dry up into crusts without rupture. There is also often disproportion between the severity of the fever and the eruption. There may be high fever in the presence of ten or twenty vesicles, or per contra, the eruption may be confluent, with but little elevation of temperature. It is plain to see that vaccination has at every point put a muzzle upon the disease. Affections of mucous membranes may be present but seldom give rise to serious complications. Complications in smallpox do not differ much from those of equally grave acute infections. They are laryngitis, bronchitis, pleurisy, pericarditis, endocarditis, meningitis, arthritis, pyemia, conjunctivitis, keratitis.

DIAGNOSIS.—This rests upon the following: History of other existing cases, recent vaccination, illness sets in suddenly. Intense pain in back and head. Initial eruptions may be characteristic; true eruption appears on the third day. It is maculated, not punctate like that of scarlet fever, but darker than scarlet fever and lighter than the dusky hue of measles. It is seen first upon scalp and face, spreading downward regularly and rapidly. It feels like shot under the skin. Elevation into papules occurs during the first day. The diagnosis becomes nearly certain when the papules by the third day change into vesicles, some of which subsequently become umbilicated. The first three days of the disease smallpox may be mistaken for influenza, meningitis, pneumonia and typhus fever. *Pneumonia* differs by pain in side, cough, rusty sputum and examination of chest. *Meningitis* has hyperesthesia, opisthotonos and herpes, also irregular temperature curve. *Typhus fever* has history of importation, eruption first on body which becomes petechial and never vesicular, temperature remains in presence of eruption. *Influenza* is marked by chilliness but not chill, aching all over body, while in smallpox the latter is chiefly confined to back and head. Mistakes arise in the eruptive diseases as measles, scarlet fever and chickenpox. *Measles* has a milder invasion period, eruption on fourth day, maculæ are larger than those of smallpox, often crescent-shape, eruption appears on back about same time as on face, maculæ of measles are softer; severe case of measles imparts to the hand on passing over the surface as that produced in passing the hand over a piece of velvet, while smallpox is rough like a piece of corduroy. On stretching, the skin of measles is perfectly smooth; not so in small-pox. Coryza more marked in measles. Fever does not fall with appearance of eruption of measles and vesicles of smallpox soon dissipates all idea of measles. *Scarlet fever* is distinguished by severity of sore throat, strawberry tongue and scarlet color of rash, which appears as minute points as early as the second day. *Papular* eczema, erythema, acne and herpes are irregular in distribution and unattended with fever or involvement of mucous membranes. Only the most superficial observer could consider these eruptions variolous. *Chickenpox* is distinguished by the presence of an epidemic. Chickenpox is a disease of childhood almost absolutely. Smallpox is a disease of childhood by preference, but does not spare the adult unprotected by previous attack or by vaccination. There is no authentic case of communication of chickenpox from a child to some adult member of the same family. Chickenpox very seldom attacks a whole family. Dogs may contract chickenpox, never smallpox. Chickenpox appears chiefly in sporadic and endemic form, epidemics never assume the range nor show the intervals of smallpox. Chickenpox is confined exclusively to childhood up to the age of twelve, being extremely rare after ten. Smallpox is preceded by prodromata — fever, headache, backache and eruption on third day. The most anxious mothers seldom notice illness of any kind until the eruption appears. The physician is called to decipher the eruption. Eruption of chickenpox appears first on back, neck and chest, if upon the face, irregularly over it and irregularly over the body. Smallpox first appears on scalp and face and descends regularly downward. Eruption of chickenpox occurs as rounded red spots, like the rose spots of typhoid in the centre of which appear a vesicle the size of a pin's head. The vesicles appear so rapidly as to seem to appear at once, smallpox takes three days. Chickenpox vesicle has no redness around it, looks as if child had water sprinkled upon it. Vesicle of chickenpox is a single sac which nearly collapses upon puncture. Vesicles are more superficial, never, uniform, very seldom on the hands. Smallpox most abundant on face and hands. There are exceptions to all these rules, but these form in their ensemble almost unimpeachable evidence. The cases about which may still hover any doubt or uncertainty should be considered as variola to secure proper protection of others by vaccination.

PROGNOSIS.—Smallpox today is favorable with exception of infancy and old age, when it should be guarded. Before vaccination eighty per cent died, now only nineteen.

TREATMENT.—There is no specific treatment. Vaccinate all exposed, for vaccination will prevent or at least modify the disease. Plenty of fresh air will dilute the poison. Phenacetin relieves pain in back and head. Chloral has no equal for nausea and vomiting. Carbolated vaseline relieves burning and itching and prevents pitting. Low diet is essential. Health boards tell us to disinfect excreta, but there is no proof of them being contagious. Smallpox lasts on average about twenty-one days. It is well to wait a week longer before fumigating. Formaldehyd and sulphur are preferred for this purpose. In my opinion there is nothing better than a regular old-fashioned house cleaning. But the whole question, with all the other horrible evils of smallpox, sinks into insignificance and slinks away like the devil at sight of the cross when brought face to face with vaccination.

In closing I wish to say a few words about the present epidemic of smallpox. It has been my lot to treat twenty cases in and about Lansing within the last year. Two were confluent, five were discrete, one was variola purpurosa where blood escapes into vesicles, usually on lower extremities as in this case which subsequently developed severe lymphangitis. The remaining cases were modified smallpox. In fact one case had backache and headache, and on the third day developed two papules, one on nose, the other on palm of hand. If this case were seen alone it would be easy to make a mistake in diagnosis, but as we are in the presence of an epidemic, the physician should always be on guard, and if in doubt should give smallpox the benefit of it.

111 WEST ALLEGAN STREET.

TRANSACTIONS.

NORTHEASTERN DISTRICT MEDICAL SOCIETY.

STATED MEETING, JULY 31, 1902, AT MOUNT CLEMENS.

THE PRESIDENT, GEORGE S. NEY, IN THE CHAIR.
REPORTED BY A. HENRI COTÉ, M. D., SECRETARY.

DISCUSSION OF PAPERS.

A PAPER entitled "The Treatment of Diphtheria" was read by DOCTOR C. C. CLANCY, of Port Huron. (See page 359).

DOCTOR STEWART: I cannot say too much in favor of antitoxin in the treatment of diphtheria. I will therefore report three cases that have been under my care. *Case I.*—This patient had the malignant form of the disease, and the action of the antitoxin was simply wonderful. It loosened the membrane, changed the nasty dark appearance, and the bad odor began to disappear after the administration of the second dose. *Case II.*—A boy eleven years old. There was no exhibition of soreness or membrane in the larynx; nothing distinguishable but a whistle in the breathing. Because of the symptoms coming on rather slowly and the general appearance of the patient, I thought diphtheria confronted me. I gave antitoxin in the evening and in the following morning there was a marked improvement. *Case III.*—A woman of fifty-seven years of age. I was called in consultation. In this case antitoxin was not given soon enough. The patient could scarcely get her breath and intubation was resorted to with satisfactory results. The first intubation afforded relief, but the procedure had to be repeated five times.

DOCTOR PATTERSON: I believe that some cases will get well irrespective of treatment. It has been my experience, in laryngeal diphtheria, that unless antitoxin is promptly employed treatment of any kind is of little avail. I rely upon alcohol and quinine in the management of this disease, and know of nothing as good as alcohol. The treatment of the patient must be both local and general. In the laryngeal variety it has been my experience that most of the patients die.

DOCTOR DEGURSE: During the past year I have had occasion to treat several cases of diphtheria. The first three cases that I had were not treated with antitoxin and I had three deaths in the one family. Another member of that family was seized with diphtheria. I used antitoxin and saved the child. In another case I was called to see a patient suffering with what was supposed to be membranous croup. I made a diagnosis of diphtheria and administered two doses of antitoxin, but the patient died the following morning. In that same family I had six other cases of diphtheria. Upon every one of these cases I used antitoxin, and plenty of it. Six recoveries followed. I think the mistake made in the use of antitoxin is that physicians do not use enough of it. Following that epidemic, I was called to see another case, a child of six years. The patient had been suffering with the disease for thirty-six hours before medical assistance was sought. I immediately administered a dose of antitoxin, following this with another ten hours later, and still another twelve hours afterward. The patient recovered. From my experience with antitoxin, I think that if it is used in sufficient quantity it is a sure cure for diphtheria.

DOCTOR KNIGHT: From my experience in the treatment of diphtheria, I could add corroborative testimony to the theory of the paper read, with which I am in sympathy. There is one point in the paper that the doctors have been discussing which has been omitted, and which seems an important one, that is, the sanitary condition of the patient, the bedding, the room, and the attendant. If diphtheria is positively caused by a septic poison, it is the duty of the physician to control that poison as far as possible, and I believe that this is often neglected. I have visited cases of diphtheria where soiled sheets, pillow-cases or handkerchiefs have been allowed to remain with the patient for twenty-four hours or more. Ever since I became convinced that diphtheria was caused by a poison, I have felt that it might be controlled by proper hygienic conditions. I take a large piece of cloth, saturate it in a bichlorid solution, and then cut it up into small squares. These pieces the patient uses for wiping his nose, or receiving the sputum from the mouth. As soon as a piece is used it is burned. I could not think of treating diphtheria without the use of antitoxin. With its use I have seen patients recover that twenty years ago, under the old treatment, I should have positively said, there is no cure. I have never lost a case of diphtheria when I used antitoxin in large doses, unless, perhaps, the patient was dying when I reached his bedside. I have seen patients die while the antitoxin was being administered.

DOCTOR CLANCY: If the personnel of this little society may be taken as an index of the profession at large, the statement made in my paper that the antitoxin treatment, or serum treatment, is popular, is pretty well founded. There does not seem to be much opposition. I do not agree with DOCTOR PATTERSON in his statement to the effect that there are cases of diphtheria which necessarily die. That statement I believe to be correct only in so far as the early treatment of the case has been neglected. I have just that much faith in its efficacy, from my observation in the use of antitoxin, that I believe in every case, if the serum is used early, there will be recovery. I was pleased to learn that several of the speakers preferred repeating the doses of antitoxin more frequently than the authorities direct. I think DOCTOR KNIGHT'S reference to the necessity for absolute sanitary precautions very important. This feature should receive particular attention in the treatment of diphtheria.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.
AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

The Healing of Ulcerative Endocarditis.—In an excellent article, Herrick (*Medical News*, September 6, 1902) takes exception to the time-honored belief that malignant endocarditis is always fatal. Endocarditis is divided into two kinds, vegetative or benignant, ulcerative or malignant, but neither anatomically nor clinically can a sharp line of demarkation be drawn, in separating the two groups. Both are by common consent regarded as infectious. If it were possible to recognize the microorganism that is at fault in a given case, it would be a more scientific classification to speak of a pneumococcic, a streptococcic, a gonococcic endocarditis, et cetera.

Clinically, by ulcerative or malignant endocarditis is commonly meant an acute endocarditis accompanied by a fairly uniform complexus of symptoms, among which may be mentioned irregular fever with chills, embolic phenomena, petechiæ, bacteria in the blood, pronounced constitutional disturbances, in the form of symptoms, of the typhoid state—delirium, subsultus, sordes—progressive anemia, et cetera.

The usual termination of these cases is death in a few weeks, or in one form after many months. It is often said that if the patient recovers, the case was one of the benignant or vegetative form; if he dies it was malignant or ulcerative. The author calls attention to certain facts which make it seem reasonable *a priori* to think that this form of endocarditis need not be always fatal; namely, some severe cases of septicemia, in man and the lower animal recover; puerperal sepsis is not necessarily fatal; pneumonia, is often accompanied by bacteriemias, by metapneumonic localization, and yet recovery may follow.

The author has made an extensive though not complete search of the literature and has found records wherein competent observers report cases with the typical symptoms of acute ulcerative endocarditis, with recovery. He gives abstracts of such cases from twenty-one observers, in which from the clinical standpoint the diagnosis of ulcerative endocarditis seemed absolutely certain. Herrick also furnishes anatomical proof that ulcerative endocarditis may heal. Von Dusch remarks: "That under favorable circumstances even the ulcerative endocarditis is capable of at least partially healing is shown by the perforations that have become converted into scarred, callous passages, and communications between separate parts of the heart." Doctor L. Hektoen furnished the author with the specimens, drawings and descriptions of three hearts wherein healing has partially taken place and yet where the appearances are such as to warrant one in saying the process was distinctly infectious, if not ulcerative. J. R. A.

The Positive Diagnosis of Meningitis, Particularly Tuberculous, by Means of Lumbar Puncture. — Hand (*Philadelphia Medical Journal*, Volume X, Number IX, 1902) describes the technique for collecting and examining the cerebrospinal fluid obtained by lumbar puncture in cases presenting some of the signs, if not all, of meningitis. The method used is a slight modification of that of Furbringer. The author states that until he used the following method he had one hundred per cent of failures in about half a dozen cases.

The fluid is allowed to drop from the needle into a sterilized test-tube which is then stoppered with a sterile cotton plug. The fluid is allowed to stand until a strand of fibrim has formed. This requires several hours. This delicate strand or film either settles to the bottom of the tube or extends from the top to the bottom of the fluid. One edge of the film is touched with a straight platinum wire, the adhesion being very firm, and the fibrin floated onto a slide, by tilting the tube, carrying with it a few drops of the fluid. Care must be taken to avoid twisting the fibrin film. A flanged lip test-tube should be employed. The film is separated from the needle by means of countertraction with a pin or needle. The fluid is drawn off with filter paper and gentle evaporation, after which it is fixed to the slide by heat. The specimen is stained in the usual manner for tubercle bacilli, et cetera, and examined with the mechanical stage.

In the author's experience the tuberculous cases showed a much greater degree of fibrin formation.

All of the germs are not caught in the fibrin; care must therefore be taken to disinfect anything that has come in contact with the fluid.

The author further comments upon the value of the chemical and microscopic examination of the cerebrospinal fluid in meningitis. The changes which occur are diminution or absence of sugar, except in tuberculous meningitis in which it is often increased, increase of albumin and—except in simple serous meningitis—the presence of leukocytes, bacteria and frequently endothelial cells. D. M. C.

ERRATUM.—In the department of "Medicine," July number of The Physician and Surgeon, page 323, line forty-one, semisolid tube medium, gelatin 8 grammes, should read semisolid tube medium, gelatin 80 grammes. D. M. C.

The Production of Sugar by Phloridzin.—The ability of the normal kidney to furnish and eliminate sugar under the influence of phloridzin was introduced as a diagnostic measure by Casper and Richter. The diseased kidney loses this function depending upon the severity of the lesion. Especially where the urines from the two kidneys can be collected separately, as by catheterization, can a one-sided lesion be very accurately diagnosed.

D. S. GRIM.

SURGERY.

By HENRY O. WALKER, M. D., DETROIT, MICHIGAN.
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AND
CYRENUS GAVITT DARLING, M. D., ANN ARBOR, MICHIGAN.
LECTURER ON MINOR AND GENITOURINARY SURGERY AND DEMONSTRATOR OF SURGERY IN THE UNIVERSITY OF MICHIGAN.

The Surgical Treatment of Bright's Disease.—J. A. Schmitt (*New York Medical Record*) observes that in 1896 Mr. Harrison called attention to the fact, that in exploration of the kidneys when he was looking for calculus or pus, though he found neither, his patients were greatly benefited. This was the beginning of surgical operations for the relief of certain obscure conditions of the kidney. Israel, in certain cases of hematuria and colicy pains that did not yield to medical treatment, cut down upon the kidney expecting to find stone, and his patients were greatly relieved though no stone was found. He explains that relief of tension produces the result but he does not advise the surgical treatment of Bright's disease.

Doctor Edebohls flatly announces that Bright's disease is curable by operation, and bases his opinion on results obtained in operating for movable kidney associated with chronic nephritis. He believes that the curative effect of nephropexy is due to a collateral circulation with new blood-vessels formed by disturbance of tissues. He states that unilateral nephritis is frequent. Puosson believes that hematuria and nephralgia are relieved by restoring the circulation when the capsule is incised. The idea of operating for chronic Bright's disease was then derived from two sources: first, operating for hematuria and pain; second, operating for movable kidney. After giving these views by different operators he proceeds to describe the different forms of Bright's disease and method of diagnosis, calling attention to the insidious manner in which the disease makes its appearance and irreparable damage done before the disease is suspected.

Many acute cases tend toward recovery under conservative treatment, and the physician will recommend to the surgeon only such cases as fail under medical treatment, the operation thus becoming a last resort. When early operation is performed the results are no better than might be expected under medical treatment with the tendency toward spontaneous recovery. When acute symptoms threaten the life of the patient then resort to surgical measures. Operating for Bright's disease as such has proved a failure. When pain and hematuria are due to movable kidney and not associated with chronic Bright's disease, operation will probably give relief.

The same results are obtained by different methods Harrison favors renal puncture or capsule incision. Israel has faith in free incision of the kidney, while Edebohls recommends partial decortication in movable kidney and complete decortication in Bright's disease alone. The writer believes that the results obtained in all cases are due to local bleeding and relief of tension by incising the capsule, but the wound of the kidney is bound to deprive it of a part of its substance. He expresses the opinion that the surgical treatment of Bright's disease may become fashionable, but would carefully scrutinize the reports of these cases for a time before accepting it as an established operation. C. G. D.

GYNECOLOGY.

By REUBEN PETERSON, A. B., M. D., Ann Arbor, Michigan.
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Nonoperative Treatment of Retrodisplacements of the Uterus.—F. H. Davenport, in the July number of *American Gynecology*, considers this subject at some length and in a most masterly and thorough manner. Under the heading of "What methods of nonoperative treatment of retrodisplacements of the uterus are at our disposal," he states that the treatment by the pessary is the only one that has any claim to consideration. He adds a few general principles which if adhered to will make the treatment of displacements by pessary a success in the greatest number of cases possible.

First: Study the case. Determine the probable length of time that the displacement has lasted, its possible cause, the symptoms it has caused, then order of occurrence, and the relative importance of the general and local manifestations, and from these data form a careful opinion as to the chances of cure by one or the other methods of treatment.

Second: In a case of retroversion or flexion always replace the uterus before adjusting the support. The pessary should not be relied upon to do this, as only in the rarest case will it be possible.

Third: In fitting a support choose one which fits exactly, if possible, but if not, have it rather too small than too large.

Fourth: The ideal pessary is one which supports the uterus perfectly and without the patient being conscious of its presence.

Fifth: The patient should be kept under observation while she is wearing the pessary and seen at regular intervals, preferably after each monthly period, for the cleansing of the support and its replacement.

Sixth: When it is deemed wise to make an attempt to go without it, it should not be removed at once, but a smaller one substituted, to be worn a month, and then a still smaller one, which finally may be removed.

To sum up briefly: the nonoperative treatment of retroversion of the uterus has a place and an important place in practice. The only method which merits an extended consideration is that by pessary. There are cases which are better treated by pessary than by operation, and there are not a few cases in which operation is the better, but in which it is refused, and some nonoperative measure alone remains. For the vast majority of such cases the treatment by pessary is the only one that holds out any prospect of cure. In selected cases, the chances of definite cure should be at least fifty per cent, but if there are included in the statistics those cases in which the physician is forced to employ pessaries when his judgment would select operation, the percentage of cures would not be more than thirty-three per cent. Cases which refuse operation should not be left untreated, for even if a cure cannot be expected from the use of the pessary, it will often make the patient comfortable. Care in the selection of a pessary and attention to the after treatment will aid materially in the success of this method.

OBSTETRICS.

BY THOMAS STONE BURR, A. B., M. D., ANN AROR, MICHIGAN.
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Ovarian Pregnancy.—Only a few months ago the demonstration by Van Tussenbroek of a specimen of ovarian pregnancy gave rise to considerable discussion as to the correctness of his observations. J. Bland Sutton, who had always doubted the possibility of primary implantation of the fertilized ovum on ovarian tissue, even took the trouble to journey to Holland in order to examine the specimen and returned convinced that his former views on the subject had been erroneous. More careful microscopical examinations of ectopic gestation masses involving ovarian tissue are tending to show that not only is an ovarian pregnancy possible, but that many cases of ova fertilized before they leave the ovary, have been wrongly interpreted. John F. Thompson, in the initial number of the new gynecological journal (*American Gynecology*, July, 1902), has furnished us with another undoubted example of ovarian pregnancy.

The specimen was removed from a thirty-two year old patient who had suffered from pelvic trouble some years before. The menstrual periods just prior to the operation were not influenced perceptibly by the pregnancy. The most noticeable symptom was the severe pelvic pain, almost continuous for a month prior to the operation. At the latter the left ovary was found somewhat enlarged and the seat of a dark, red tumor the size of a horse chestnut. The tube was nonadherent and the few weak adhesions about the ovary had resulted evidently from a recent attack of inflammation. The ovary was removed and the patient made an uninterrupted recovery. Thompson has given a most accurate description of the gross specimen which was subjected also to a careful microscopical examination. Among the points which he brings forward as substantiating his claim that the case is one of ovarian pregnancy are that the tube is not concerned in the development of the pregnancy. No supernumerary tube was present and sections made at or near the fimbriated end of the tube showed no evidence that that structure had been the seat of pregnancy. Moreover, the fimbricated end was found at the time of operation to be entirely free from the ovary, excluding the possibility of tube-ovarian pregnancy. The fimbria ovarica was found in its normal position. The pregnancy had occurred evidently at the extreme inner end of the ovary and there was no evidence from examination of sections of ovarian tissue that the fimbria ovarica had passed up over the surface of the ovary. Not only did more than one hundred sections of the ovisac show no cells which could be considered decidual, but no trace of decidual tissue could be found in any part of the specimen examined.

Pseudopregnancy.—W. S. Smith (*American Journal of Obstetrics*, July, 1902) claims that there is no complaint, when misunderstood and mismanaged, which will give rise to greater trouble to the practitioner as well as the patient than pseudopregnancy. Mistakes in the diagnosis of the condition are frequently made yet but scant attention is accorded to the subject in the text-books.

Not only do women approaching a premature or normal menopause and desirous of having offspring present the nervous and sympathetic disturbances of pregnancy, but also such signs as morning sickness, enlargement of the breasts, and areolar papillæ, and even the secretion of a lactescent fluid.

If to these be added an abdomen gradually increasing in bulk from an excessive deposit of fat in its walls and omentum, intestinal distention from fecal accumulation or from flatus, the diagnosis of the condition may often be very difficult. In establishing the diagnosis the breast signs and auscultory abdominal signs should not be depended upon by the general practitioner. On the other hand he should endeavor to ascertain by vaginal and vagino-abdominal examination the position, size and consistence of the cervix. The color and character of the vaginal walls also should be carefully noted as their appearance in connection with the gravid and nongravid uterus is very dissimilar.

PEDIATRICS.

BY ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
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The Best Food for Infants.—Dessau (*Medical News*, Volume XXX, Number XXII) says the simplest, cheapest and best food for daily use is a fair average quality of cow's milk diluted with water according to the age and digestive capacity of the child. Top-milk is sometimes preferable. A pinch of salt or phosphate of soda and a heaping teaspoonful of cane sugar to the quart is added. This is Pastuerized. For infants under three months, equal parts of milk and water are used; for older, one part of water to three of milk.

Treatment of Whooping-Cough.—Delherm (*Archives de Medicine des Enfants*, May, 1902), in twenty-eight cases of whooping-cough, has used inhalations of ozone with great success. He says in part: "Ozone possesses marked antispasmodic properties, and is best used in this stage. Three or four inhalations a day of ten minutes each, diminishes the number of attacks, the period of paroxysm, and the violence of the individual attack." J. N. Bartholomew, in the *Medical Herald* (March, 1902), calls attention to the use of antitussin in whooping-cough. It is used in daily inunctions on neck and chest. The author has treated seventeen cases with it, in the past year, varying in age from three months to thirteen years, with marked diminution of the number of paroxysms, mitigation of their severity, and limitation of the duration of the attacks. In the author's cases the average length of time required for complete disappearance of the paroxysm was three and one-half weeks from the beginning of treatment.

Rheumatism in Children.—Flloyd M. Crandall (*Archives of Pediatrics*, August, 1902) says the child of rheumatic tendency should wear flannel at all seasons of the year, and have special attention given to its exercise in the open air in fair weather. Diet should be plain and nutritious, restricting the starch and sugar somewhat. Each case requires special study in regard to diet, and while milk is the best, he has not seen any harm follow the use of properly made gruels, broths, et cetera. He recommends as a prophylaxis removal of adenoids or enlarged tonsils and proper care of the throat and also the use of salicylates for a long time if the rheumatism tends to recur. For the anemia he would administer iron as soon as practicable. In acute rheumatic attacks protection should be afforded each joint affected by cotton wool and absolute rest in bed between blankets. We can, by proper diet, hygienic management, and proper medication prevent to some extent acute attacks of rheumatism.

Tubercular Peritonitis of Infancy.—Thomas Morgan Rotch (*Archives of Pediatrics*, September, 1902) says this disease is rare during the first year, and when it does occur it is fatal and not amenable to treatment by laparotomy. The most common age for the disease to appear is from one and a half to four years. It may be primary or secondary. If the lung or any important organ is the primary cause the prognosis is of general tuberculosis and laparotomy is of little avail, but if the tuberculosis is primary in the mesenteric lymph nodes it may be relieved by operation. If the tuberculosis is in the peritoneum primarily laparotomy is essentially indicated. He says some of these cases get well without a laparotomy, but the great majority do not, and when we have made a diagnosis of localized tubercular peritonitis we should operate, for this localized process may at any time become general and result fatally. Laparotomy is comparatively safer than the nonoperative, and the patient should be given the benefit of the chance.

Education and Development of Neurotic Children.—Graeme Hammond (*New York Medical Journal*, August 30, 1902) says neurotic children are those whose nervous force is below the normal, whose nerve elements are imperfectly developed. These children, if left to themselves, never reach the proper condition of physical development, and he attributes this to the rapid development of the country, to the accumulation of wealth, and to the comforts, ease and luxuries of living of the parents. In some cases we can detect the neurotic condition in infancy, but the majority do not manifest the neurotic condition until toward the fifth or sixth year and upward. It is at this period that these children's mental development seems to outstrip their physical development, and at puberty many nervous disorders make their appearance. These conditions, I am convinced, says the author, may be entirely eradicated by a proper system of training. The education of the neurotic child should be cautiously advanced, while the physical training should be of paramount importance. Direct the physical training of the child so that he will grow up a healthy, vigorous man, and leave his mental training until his physical health is firmly established. With careful attention to the diet, sleep, various bodily functions, fresh air and proper clothing, in addition to the systematic, well-regulated and long continued physical culture there should be no remains of a neurotic disposition as the child enters manhood.

OPHTHALMOLOGY.

BY WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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Observations upon Recent Methods of Treating Corneal Ulcers, with Especial Reference to the use of Carbolic Acid as a not Infrequent Substitute for the Actual Cautery.—Theobold (*American Journal of the Medical Sciences*) speaks of the good results which have been obtained from the use of carbolic acid in the treatment of ulcers of the cornea for its germicidal effect and as a substitute for the actual cautery.

"That the application of carbolic acid to a corneal ulcer is a simpler and safer procedure than its cauterization by the galvano- or thermo-cautery goes without saying. But what of its efficacy? I am not prepared to assert that it will accomplish in every case what the cautery will do, or that it should wholly supplant the latter; but I believe that, in many cases in which it is usual to employ the cautery, carbolic acid may be substituted with advantage, and that in most cases it is judicious, at least, to make a trial of it before resorting to thermal cauterization.

"In applying pure carbolic acid to the cornea, it is, of course, important to limit its action carefully to the affected part. To facilitate this, the eye should be anesthetized by cocain, which renders the procedure entirely painless. I have found it convenient to make the application by means of a pointed toothpick, about the tip of which a very small quantity of absorbent cotton has been wound. If much cotton is used an excess of the acid will be taken up and it will be almost impossible to prevent its spreading over healthy portions of the cornea. To the surface of the ulcer the acid should be thoroughly applied by a gentle rubbing-movement which is, in effect, a sort of currettage. When the ulcer is foul and its walls are lined by infected and necrotic material, this should be removed with a small currette before the acid is applied. When, however, this condition is less pronounced, aided by the loosening action of the cocain, the cleansing of the ulcer may be effected satisfactorily by means of the toothpick, armed with a wisp of dry cotton. After the acid has been allowed to remain in contact with the ulcer for a few moments, the lids meantime having been held apart, its further action should be arrested by flushing the cornea with sterile water, normal salt solution or a saturated solution of boric acid. After the effect of the cocain has passed off some smarting or discomfort may be felt in the eye, but usually this is not pronounced.

"The effect of carbolic acid on the surface of the cornea is rather startling, for it attacks the epithelium energetically and, in an instant, renders it opaque, causing it to assume a milky appearance. Bowman's membrane, it would seem, is much more capable of resisting its caustic action, for the superficial opacity which it produces quickly disappears."

NEUROLOGY.

By AUGUSTUS WRIGHT IVES, M. D., DETROIT, MICHIGAN.
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Mastoid Pain due to Hysteria.—Caplan (*Saint Louis Courier of Medicine*) relates an interesting case of a young girl aged eighteen years, who suffered for four years intense pain in the right mastoid region. At this time she was operated upon for mastoiditis with negative results except that for two weeks after the operation she was practically free from pain, but before the wound had healed the former excruciating pain returned, and the girl begged to be relieved of her suffering at any cost.

Examination showed normal conditions except the exquisite sensitiveness of the ear region, so that the slightest contact of the cotton bearer with the posterior wall of the canal produced cramp-like contortion of the neck to the right and shouts of pain. The surface of the mastoid, especially the scar from the operation, was likewise exquisitely painful. In the pharynx several hyperesthetic spots were found.

The diagnosis of hysteria was made, meaning that there was no disease of the middle ear. Carbol-glycerin was prescribed and the patient told she would recover completely. Any doubt as to the diagnosis was set at rest by the declaration of the patient about this time that she had suddenly become deaf in the right ear. She improved rapidly under the above treatment and suggestive therapeutics.

Educational Treatment of Locomotor Ataxia.—Rhein (*Saint Louis Medical and Surgical Journal*) believes that the general practitioner is inclined to view patients suffering from locomotor ataxia as hopeless and unsatisfactory to treat. This opinion, the writer does not feel is warranted. He says it goes without saying that the amount of benefit derived must depend upon the stage to which the disease has progressed. In early cases in which the incoordination is slight, the pain insignificant, and the general health but little reduced the treatment is always encouraging. Even when the ataxia is so great as to require support in walking, or even when locomotion is impossible (if this is not due to paralysis but simply incoordination) most hopeful results may be obtained.

The principal difficulty with the educational treatment is that it so radically upsets the routine life of the patient that he is frequently not easily persuaded of the expediency of the measure. It will be found necessary in dealing with these cases to speak frankly and honestly about the disease, prognosis and treatment in order to control the patient and induce him to undergo the treatment. He requires constant surveillance by his medical advisor, as without this careful oversight few patients will continue month after month with this routine treatment.

The good results of the treatment is explained as follows: Nerve tissue possesses the quality of retaining impressions made upon it and these grow stronger with the repetition of the impressions, the change thus caused in time becoming permanent. This reëducation of the nerves supplying the muscles affected is necessary because the subjects have practically forgotten which muscles are required in performing certain movements.

Therapeutic Value of Work in Hysteria and Neurasthenia.—Schwab (*Interstate Medical Journal*), in the commencement of his paper, quotes as follows from Professor Jacques Loeb, of Chicago: "Human happiness is based upon a natural and harmonious satisfaction of the instincts. One of the most important instincts is usually not even recognized as such, namely, the instinct of workmanship. Lawyers, criminologists, and physicians frequently imagine that only want makes man work. This is an erroneous view. We are instinctively forced to be active in the same way as ants and bees. The writer does not define work as the mere using up of muscular energy, as by exercise, gymnastics, physical culture, walking, et cetera, nor the various mechanical employments which are so commonly recommended to nervous individuals, such as household matters, sewing, painting, musical training, et cetera. The attention and *interest* of the patient must be aroused and no work can be useful in this sense until they are. In Grohman's institute in Switzerland various sorts of work are in daily use, such as gardening, carpentering, modelling, various kinds of art work, et cetera.

It is a rather noteworthy fact that as a rule the neurasthenic or hysterical woman is also an unemployed woman, while similar cases are found largely among men, busy with work that is unsuitable to them. The effect of work in the first instance is to create a new standard, the units of measurements of which involve a new element. It may be thus stated: We have the individual, his symptoms and the work in hand; with development of the latter and interest therein the importance of the other two factors decrease. As one patient describes it: "The symptoms still remained but their importance and the amount of attention given them steadily decreased." A result bordering on cure.

THERAPEUTICS.

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Saturnine Intoxication from Lead Ingested or Fixed in the Tissues.—Doctor Mabit, in a thesis reported in the *Journal de Médecine et de Chirurgie*, of Paris, July 25, 1902, has collected several cases of lead poisoning in which the physicians treating the cases found much difficulty in locating the source of the poison.

One of these was that of a man who presented all the signs of chronic lead poisoning but in which the source of supply of the lead was not found until the patient himself reluctantly disclosed it.

He told the doctor that about four months before seeing him he had begun the practice of swallowing at intervals and one at a time lead bullets for the purpose of stopping pain and vomiting of which he had long been suffering. He had, in three months, he said, swallowed eight lead bullets, and had regularly discharged each one, the first at the end of three days and each of the seven others within forty-eight hours from the time of its ingestion, and had taken care never, except in the first instance, to swallow a bullet until he was certain the preceding one had been discharged.

His condition, however, grew worse and he died soon after from a lead encephalopathy. At the autopsy there were found in the stomach twenty-six lead bullets, of which some had probably been swallowed but a short time before.

Another case, occurring in the practice of Trousseau, was that of a man suffering from unmistakable lead poisoning, but in which it was impossible to discover the origin of the metal. One day, however, while Trousseau was talking with the man he saw him take up a grain of shot from a half-glassful of these pellets (which was kept on the desk for the purpose of drying pens), place it in his mouth and chew it until it was flattened, after which he spat it out. As soon as he had done this he unconsciously picked up another pellet and proceeded as in the previous case.

Trousseau at once was able to solve the enigma. Questioned, the patient said he had for a long time chewed shot in the manner described without ever once suspecting any injury could come to him from such habit.

Cases wherein the intoxication comes from lead missiles lodged in the tissues are more rare and more difficult to explain.

In some instances objects of this kind have been lodged in the tissues and caused no trouble until after they had been there for periods of ten or fifteen years.

Doctor Mabit mentions a case of this kind, occurring in the practice of Doctor Choyen, in which a ball lodged in the knee was well borne for years, but finally caused saturnine intoxication, in which lead gout was a prominent symptom.

Cases like this, however, are exceptional and difficult to interpret. For how explain the fact that a piece of lead lying in the tissues of the body for years without causing trouble may suddenly become the cause of a general intoxication?

Doctor Mabit suggests the not unreasonable explanation of this phenomenon by saying that at the time of the appearance of the disturbing symptoms the kidneys are not performing their complete functions and for this reason are leaving in the system poison from the lead which while they were acting normally was completely removed. This is a point of great interest especially to the practitioner called upon to treat a case of this kind.

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN
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Ueber Schaumorgane und Gangrene foudroyante.—Westenhoeffer (*Virchow's Archiv*, May 28, 1902), after studying four cases of the so-called "Schaumorgane" and reviewing the literature of emphysematous gangrene and the gas-producing bacteria, concludes that the Bacterium phlegmones emphysematosus of Fränkel (Bacterium aërogenes capsulatus of Welch and Nuttall) is not pathogenic for man, and never gives rise primarily to a gas-gangrene, but is a pure saprophyte growing only on necrotic tissue or in exudates which offer a favorable culture medium. The production of gas in infected wounds is therefore only a secondary phenomenon. The relation of the gas-producing organism to the human body may be expressed by the term "nosoparasitism." Phlegmonous gangrene becomes a more dangerous complication of wounds in that the formation of gas aids in the absorption of poisonous products of decomposition. The following five groups of bacteria are recognized as giving rise under favorable conditions to "Schaumorgane" and gas-gangrene: (1) The Bacillus coli commune and its relatives, Bacillus lactis aërogenes and a paracolon bacillus; (2) Bacterium phlegmones emphysematosus; (3) the bacillus of malignant edema; (4) Proteus vulgaris Hauseri; (5) Bacillus emphysematis maligni. The Bacillus aërogenes aërophilus agilis of Uffenheimer may be placed into a doubtful sixth group. Westenhoeffer, however, holds that for living human tissue there is no pathogenic gas-producing bacillus. The bacillus of malignant edema is able to produce the disease of malignant edema in the human body only in the presence of an already established severe infectious disease ("*nosoparasitism*"). The Bacillus phlegmones emphysematosus, Bacillus emphysematis maligni (identical with the Granulobac, mobilis), Proteus, and Bacillus commune are able to form gas only as pure saprophytes upon necrotic tissues. The absorption of the decomposition products produced in gangrene foudroyante by the action of these bacteria gives rise to the severe symptoms of general intoxication "*nosoparasitism.*" "Schaumorgane" is a purely cadaver-phenomenon. The old expression, *emphysema cadaverosum*, designates fitly the essential nature of the process. The cell-necrosis found many times in organs showing gas-production is not the result of an intravital activity of the gas-forming organisms, but the loss of staining-power on the part of the nuclei is to be explained on the grounds of physical-chemical causes.

Ueber die Mischgeschwuelste der Mundspeicheldruesen.—Steinhaus (*Virchow's Archiv*, May 28, 1902). The questions concerning the genesis of the peculiar mixed tumors of the salivary glands have led recently to warm discussion. Two schools exist: one holding that the parenchyma of these tumors is of endothelial origin, the other that it is of epithelial. The endothelial origin has been most strongly supported during recent years, but, in 1899, Hinsberg, on the ground of his own material and the literature of the subject, asserted for these tumors an epithelial origin. In addition to the disputed nature of the parenchyma of these growths the presence in them of cartilage, bone and myxomatous tissue is explained in different ways by different observers. The supporters of the endothelial theory hold that the neoplasm arises from the endothelium of the lymph-spaces of the connective tissue. As these cells proliferate they fill up the lymph spaces with cells which at first are spindle-shaped but later become polygonal, forming cords and strands of cells which at first are thin but later become thick, and form according to the nature of the connective tissue either a network or coarse strands of cells. The resemblance to carcinoma is great and this resemblance becomes closer if the cell-nests possess a lumen as is frequently the case. The growth is distinguished from carcinoma, however, by the fact that the cell-nests have no relations to the glandular epithelium, but show such a close connection with the intercellular substance that in specimens hardened in alcohol there is no retraction. Further, there is usually also a diffuse proliferation of the endothelium so that portions of the growth may closely resemble a sarcoma. The supporters of the epithelial theory claim that the endothelial proliferation seen at the peripheral zone of the tumor is reactive in nature, that the neoplasm arises from the proliferation of its own cells, and that the surrounding endothelial cells do not become transformed into tumor cells. Further, the lack of any relation between the tumor cells, and the glandular epithelium may be explained by the origin of the growth from embryonal inclusions of epithelial anlage. Hinsberg observed prickle-cells in a number of places in one of his cases and therefore regarded the cells as arising from squamous epithelium. Such a finding is of the greatest importance and fatal to the endothelial theory if Hinsberg's tumor was really a typical mixed tumor of the parotid. From the description given by Hinsberg, Steinhaus concludes that the neoplasm was in reality no typical mixed parotid tumor, but a carcinoma showing hyalin change and calcification of its stroma, no myxomatous tissue being present. Steinhaus further holds that the proliferating endothelium seen at the periphery of the growth is not the normal endothelium of the neighboring tissues but is an abnormal endothelium belonging to the neoplasm. Cartilage, myxomatous tissue, bone and endothelium, all the elements of the tumor, proliferate and form new tumor-masses. The proliferation of the cartilage cells leads to the formation of atypical cartilage masses, the cells of the endothelium of the lymph-spaces to the formation of atypical endothelial cords and strands. Only in the tumor itself and not in its neighborhood does this proliferation take place. The cells at first are identical with endothelium but later change their type and become more like epithelium. As to the origin of these tumors Steinhaus holds that they are derived from embryonal inclusions of periosteum or perichondrium, the bone and cartilage found in them arising from periosteal or perichondrial anlage and not formed by a metaplasia of the connective tissue. The tissue from which these growths develop is the periosteum of the lower jaw, and from it bone, cartilage, myxomatous and endothelial proliferations arise. The theory of the endothelial origin of the parenchyma of these tumors Steinhaus believes to be strongly supported by the view that the endothelium is derived from the neoplastic inclusion and not from the lymph spaces of normal connective tissue. In reply to the arguments of Hinsberg that these tumors also give evidence of secretory activity and in many places have a gland-like structure, Steinhaus hold that the so-called secretion is only a degenerative change of a mucoid nature; the gland-like structure is explained by the proliferation of round or polygonal endothelial cells around a lumen. In conclusion Steinhaus states that the study of the structure of these growths is convincing that the parenchyma is of endothelial and not epithelial origin.

Beitrag zur Kenntniss der Metastasen des Primaren Nieren Carcinoms.—Sutter (*Virchow's Archiv*, May 28, 1902) reports an interesting case of primary carcinoma of the left kidney with extensive retrograde metastases through the veins into the bladder, prostate, testis, cord and penis. These metastases are explained by retrograde transportation through the vena spermatica interna. The possibility of similar metastasis of tubercle bacilli is pointed out, and the great importance of venous transportation of tumor-particles is emphasized. Sutter's case is remarkable for the extensive involvement of the penis, the spaces of the corpora cavernosa being filled with tumor-masses. For a month preceding the death of the patient the organ had been in a state of permanent erection and turgescence of hard consistence. The left vas deferens was likewise enlarged and hard. The urine contained much blood but no cells could be found in the sediment that with certainty could be regarded as tumor-cells. The exploratory puncture of the primary growth gave negative results. The histological examination of the growth obtained at autopsy showed an adenomatous structure in the primary, and in the metastases partly adenomatous and partly papillomatous.

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ORIGINAL ARTICLES.

ADDRESSES.

THE SPIRIT OF RESEARCH IN MEDICINE.*

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A CUSTOM of venerable age, indeed, has decreed that the opening session in a medical school shall be devoted to the reunion of the young and the old,—the aspiring Freshman and the dignified Senior, the student body and the Faculty. An introductory address is in order on that occasion. Volunteers are not called for to perform this pleasant task of greeting colleagues, students and friends of the department. Perhaps this is not done lest too many should offer themselves for the service and thus render a selection difficult. A spirit of self-denial, it would seem, dictates that the duty be assigned to a new professor if there be one, and in default of such the choice falls upon him who has the least to say. I can assure you that the utmost unanimity and expeditiousness characterizes the deliberations of the Faculty on that subject.

I am not insensible of the very great honor of addressing you upon this day. Earnestness is, and always must be, one of the characteristics of the medical student, and as I look about me I recognize many familiar faces which have left their impress upon my mind because of the work they have already done. Others there are whom I fain would see, but who having done their allotted work have gone forth as graduates of this school to fulfill the noblest duties of man. In their stead I see many new faces of those who have come to take their place. To you, one and all, the last and the first, with pleasure do I extend for myself and on behalf of my colleagues a hearty welcome. Welcome to these halls, these laboratories, these hospitals. They are intended for you and such as you. A community of interest binds teacher to student and student to teacher and were it not so it would indeed be unfortunate for the school. Your faculty are students like yourselves, and I may be permitted modestly to say, with only a slight difference in age. The common bond of interest which unites us is the search for truth, the light that never fails. The whole truth, the absolute truth, may be never attainable, but it is your duty, it is our duty to strive to attain the utmost possible limits. Medical science is far from being circumscribed by a fixed boundary. The studies and researches of the past centuries have cleared up some parts of the domain of knowledge as regards man, life and disease, but as yet it is but a small clearing. Inconceivably more remains yet to be done and every earnest student, young and old, will find the opportunity of doing his share in the promotion of that learning which concerns us all.

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It is by no means an uncommon occurrence to meet students upon the threshold of their career in medicine having the preconceived notion that the several studies which they are taught have reached their full development and that little or nothing remains to be added to our knowledge along those lines. In some indefinite way they have had it instilled into their minds that the era in which we live has brought all knowledge to perfection; that the text-book placed in their hand is truth itself absolute and complete, duly revealed and officially embalmed; that their teachers are high priests who hold the keys to everything worth knowing in their respective specialties. To such anatomy presents itself as a study, cut, dried and appropriately shelved; chemistry forms an interesting subject replete with disagreeable odors and dangerous explosions: physiology is absorbing because of the circulation and digestion; while medicine consists in a stereotyped reproduction of heavily loaded prescriptions or equally potent attenuations. It is therefore not a matter of surprise if those endowed with such a narrow perspective eventually drop into the whirlpool of the pathies and pseudosciences so common in our day. Faith in words, blindness to reason and subservience to dogma are the virtues needed to secure a peaceful rest.

It is well at the outstart to recognize that error is inherent in man, " Es irrt der Mensch, so lang er strebt." The history of the development of astronomy, chemistry, physics and other sciences is burdened with discarded theories and exploded facts. Medicine likewise can reveal a past even more replete with shattered credulity. And yet an enormous advance has been made. If this advance has been more marked in recent years than in the past it is due to the fact the great majority of men are free to think and work and above all, free to criticise and question the results obtained by others. It is not quite three hundred years since GALILEO was forced by the Inquisition to publicly retract his teachings as to the motion of the earth. It is but a little over three hundred years when the theologian and anatomist SERVETUS was burned at the stake and with him the entire edition of his work on Anatomy because the writer and book did not have the approval of CALVIN. Under such conditions it was obviously impossible for medicine to advance otherwise than at a slow pace. The spirit of research though necessarily slow in developing was nevertheless the quickening influence in medicine. When once matured it speedily brushed aside the cobwebs bequeathed by GALEN. New discoveries and new doctrines made their appearance. Some of these are with us yet, but a far larger number have been dropped by the wayside.

The leaven of research then has been the one potent factor in the upbuilding of medicine. It was the untiring JOHN HUNTER who said to his pupil CLINE, "I love to think," and who wrote to his other pupil the immortal JENNER, the originator of vaccination, "But why think? Why not try the experiment." To try and to do is the substance of research. Thinking alone is a dangerous inadequate substitute when material things and effects are involved. There were perhaps others who thought of a westward passage across the Atlantic, but it was the crowning glory of COLUMBUS that he had not only thought but also had the courage to do. Others may have thought of ligating arteries in aneurisms, but it required the resoluteness of JOHN HUNTER to try the experiment in actual practice. To think is a power given in a greater or less degree to all men, but to try perseveringly, to experiment untiringly until success is reached is a less common gift. Indeed unremitting perseverance in work may be looked upon as one of the attributes of genius. Continuous plodding, no matter how slow, yields in the end results of some value. On the other hand, the most brilliant mind if unendowed with perseverance will give but poor returns for its existence.

We are accustomed to point to the century just closed as an era of unparalleled industrial and scientific progress, but we must not lose sight of the fact that this means an unusual development of shops and of laboratories. A feverish activity pervades the one and the other. New appliances and new methods are sought for in order to secure better financial returns in the former and more correct scientific results in the latter. The profession of engineering today is wholly unlike that of a generation ago. The theoretical knowledge has not only been increased, but a practical experience such as can only be gained by prolonged shop experience is demanded. And so it is with medicine. It is within the lives of many of you that the best medical schools in the country found it possible to graduate their students after a brief attendance of twelve months chiefly upon didactic lectures. Today the recognized medical schools of the country stand for thirty-six months of work and of this time a goodly part is devoted to the laboratory. The didactic lectures, useful as they are, have been properly subordinated to the laboratory and to the laboratory methods which have found their way even into clinical work. The enormous progress of recent years is directly due to the development of laboratories and the fostering of the spirit of research. In the bygone years the laboratory was the holy of holies wherein the ordinary student never so much as set a foot. A favored few of the professor might have the opportunity of a closer communion with nature while the rest contented themselves with the knowledge dispensed at second hand. Now, the laboratories are open to all; more than that, with the recognition that the laboratory method is essential to the successful training of the students, the beginning work has become obligatory. The student should not lose sight of the fact that the laboratory drill which he takes in course is usually introductory in kind and that the object is not merely the reproduction of known facts, but rather the acquirement of the power to work, the ability to unveil new facts, the strength to think and to try for himself.

In no profession is the student called upon to devote more time to laboratory methods in the acquirement of knowledge than in medicine. So great has been the advances along these lines that we are accustomed at times to speak of the present as the era of experimental medicine. The splendid new laboratory in which you as students are to have the privilege of working, is an acknowledgment of the importance of the scientific method in medicine. And yet, if we were to assume that experimental study was an innovation of the present era, we would not be doing justice to those noble and unselfish men of the past, who worked hard and under the greatest difficulties actuated by no other motive than love of knowledge, their desire for truth. It is for that reason I have thought it best to outline to you the development of experimental thought in medicine as seen in the evolution of our modern laboratory methods.

It may be well to emphasize at the outstart that experimental medicine has by no means been created during the century just closed. It is true that medical thought has advanced enormously of recent years along the path of experiment, but it is nevertheless true that this same path was entered upon by the early pioneers in our science. It will be seen that the renaissance in medical thought and observation is marked by the master minds of the sixteenth and seventeenth centuries and it is to these and to their predecessors that we must turn in our search for the beginning.

Obviously the study of anatomy claims our attention first. When the poet wrote "man know thyself" he but expressed a thought which ancients as well as moderns have tried to follow. The earliest dissection of the human body is said to have been made by HIPPOCRATES, the father of medicine, about four hundred years before CHRIST. It is by no means certain, however, that he did so. The PTOLEMIES in Egypt, however, in the third century before CHRIST inaugurated a most radical departure. In the words of BOUCHUT "braving all prejudices, and considering that the interest of science ought always to outweigh those of the individual, PTOLEMY authorized the dissection of human dead bodies and himself set the example by beginning to dissect with the physicians gathered around him." The Alexandrine school of anatomy under HEROPHILUS and others became justly famous and continued so for more than five centuries. The almost innate abhorrence in man to the mutilation of the dead led to a complete cessation of human dissections. This is seen in the fact that the great GALEN who died about the year 200 of our era, based apparently all his anatomical descriptions upon dissections of the ape. And yet, strange to say, it was GALEN'S teachings of anatomy which dominated Europe during the succeeding fourteen centuries. The revival of human anatomy began and had to begin with the study of man himself. The obstacles to this were such as hardly can be imagined at the present day. The Christians of the middle ages, whatever indifference they may have had with reference to the torture of the living body, like the Chinese of the present, regarded the corpse as sacred to mutilation. Their disregard for the living was atoned for by their solicitude for the complete restoration of the body in the hereafter. And yet, though objecting to dismemberment by the knife, it was not out of place to boil the dead in order that the bones thus cleansed could be returned to their distant homes. This practice was very properly forbidden by a papal edict in 1300, but unfortunately the wording of the edict was such as to practically prohibit human dissections. Excommunication was the penalty threatened anyone who would "boil, cut up or dry the bodies of the dead." To quote FOSTER: "The church held the gates of learning, and they who entered were bidden to tread her path and hers alone. Her methods became the methods of all scholars. Under her guidance the written word took the place of the made world; the pursuit of truth ceased to be the looking into the phenomena of nature and the seeking for the reason why; it narrowed itself to asking what the teachers taught. The method which had proved triumphant in the search after things spiritual was taken to be the method in all inquiry, and biologic inquiry was no exception. As spiritual truths were learned by the study of the revealed word, so anatomical and medical truths were to be sought for, not by looking directly into the body of man, not by observing and thinking over the phenomena of disease, but by studying what had been revealed in the writing of HIPPOCRATES and GALEN. As the Holy Scriptures were the Bible for all men, so the works of the Greek and Latin writers became the Bible for the anatomist and doctor. Truth and science came to mean simply that which was written, and inquiry became mere interpretation."

Among the universities of the middle ages that at Salerno, near Naples, was the earliest, and for centuries it enjoyed marked preeminence as a center of learning. It is noteworthy that the school of medicine was established at Salerno long before a school of law or of philosophy. Its halls were open to women as well as to men and women professors were by no means uncommon. During the eleventh century anatomy was studied there, after the fashion of GALEN, by making dissections of swine. The rarity of human dissections may be gathered from the fact that in the thirteenth century the EMPEROR FREDERICK, the Second, ordered "that every five years a corpse should be dissected publicly, and that physicians and surgeons should be admitted, according to their rank, to the dissection." The same Emperor, recognizing the harm which may arise from the ignorance of physicians, ordered "that no one shall henceforth practice physic unless he be first publicly examined by the masters at Salerno and present testimonials, both from them and from those appointed by us, to ourselves or our representative, and receive from us or him license to practice." While this medical act is not the earliest on record, yet it is of interest in this connection because of the prominence it gives to the school at Salerno.

It is to the republic of Venice, however, that we are indebted for the revival of the study of anatomy and for the establishment of the republic of medicine. Within the walls of its universities, at Bologna and at Padua, the struggle for independence was inaugurated and largely carried to a finish. It was there that the emancipation from the servile obedience to the writings of the ancients took birth and it was there that the spirit of research was brought into being.

In 1308 the Grand Council of Venice passed a law requiring the medical school to make a human dissection once a year. As a result of this decree it became possible for MONDINO, the professor of anatomy at Bologna, to make three public dissections about the year 1315. This may be said to be the first attempt at the demonstration of anatomy, although it is said that practical anatomy was taught at Padua, the sister university of Bologna, as early as 1151. MONDINO not only publicly demonstrated human anatomy, but also wrote a book based upon these dissections, in which work he is said to have been assisted by a learned woman physician.

The innovation introduced by MONDINO made Bologna the most prominent medical school in Europe. Students were attracted thither from afar. Moreover, in a short time almost every medical school in Europe gave public demonstrations *once or twice* a year in human anatomy. The demonstrations as made in those days were necessarily of short duration, partly because of the imperfect knowledge of the subject and partly because of the unhindered putrefaction of the body. The successors of MONDINO, for example, covered their demonstrations in four lectures; the abdominal organs, the thoracic cavity, the head and the extremities were thus consecutively treated. Needless to say that medical students nowadays do not acquire their anatomy lectures and practical work as readily as did their forerunners in "the good old days."

Discoveries in anatomy became as common as those in pathology and bacteriology of recent years since as the years went on dissection became more and more the rule. Thus, two hundred years after MONDINO, his successor at Bologna, the famous BERSENGARIUS claimed to have made over one hundred dissections. It should be noted, however, that these dissections were made largely as demonstrations and that while the staff, as we would call it today, enjoyed close proximity to the subject, after all, the student really had no opportunity for practical work. The introduction of the laboratory method in anatomy as we will presently see is of much later origin.

While the Venetian universities, although under the immediate eyes of the Pope, demonstrated human anatomy after a fashion and in accordance with GALEN'S teachings, yet in other countries where the Church was even more exacting than at home, anatomy continued to be taught by dissections of the dog and other animals and rarest of all of the human subject. The dawn, however, of a new era was at hand. With the discovery of America, European civilization entered upon a strenuous career in commerce, in religion, in art and in learning. The Spanish and Portugese, French and English navigators explored the coasts of the Western Continent. India itself was reached by DA GAMA by the South, and a few decades later the English, making their way eastward along the shores of the Arctic, discovered Russia and reached the court of IVAN, the Terrible. The seeds of protestant reformation planted by JOHN HUSS a century before, came to full fruition under MARTIN LUTHER, HENRY the VIII, and JOHN CALVIN. The renaissance in art was represented by the great masters, DUERER, HOLBEIN, ANGELO, DA VINCI, RAPHAEL and TITIAN. The birth of science was marked in astronomy by the rejection of PTOLEMAISM and the enunciation or revival of the true theory of the solar system by COPERNICUS, and in medicine by the overthrow of Galenism and the introduction of the spirit of research. After fourteen centuries astronomy as well as medicine was at last unfettered and allowed to develop and it is to the master mind of VESALIUS that credit is due for the real progress in anatomy. He, more than any one else is entitled to the distinction of "Father of Anatomy."

VESALIUS was born in Brussels in 1514. Nearly every European country has tried to claim him as a son. To the Germans, he is of German parentage through his father; the English lay claim to his mother, while France boasts of having him as a student; Italy as [a professor and Spain as a court physician. His natural bent showed itself while still a boy in his fondness for dissecting animals. To satisfy his wants he left his home, as a lad of eighteen, for Paris to study medicine. Very soon the superficial and bungling demonstrations of the anatomy of dogs by unskilled barbers forced VESALIUS to push his wolud-be teachers aside and to show them how the work should be done. His love of truth, his great yearning for knowledge had made to him animal dissections a pleasure and a privilege, whereas to his would-be demonstrators they represented but disagreeable and unclean drudgery. Human dissections even at that time were not available for the thirsting VESALIUS. Osteology, however, he could and did study with great zeal though often at the risk of his life. In the cemeteries of the time bones lay scattered about the ground and it was there that the young man was wont to go for his material. In one of these places, now the beautiful and well-known park "Les Buttes Chaumont," he and his companion nearly lost their lives, being attacked by savage dogs who frequented the locality, also seeking bones. After three years in Paris he migrated to the University of Louvain. Here he continued his studies with ever increasing zeal, but after a year's residence he started for Venice, then the beacon light for scholars who came from afar. In a few months the University of Padua bestowed upon him the degree of Doctor of Medicine, and, at the same time recognizing the broadness of his training and his undoubted ability entrusted to his care the teaching of anatomy. That trust was well rewarded for in a few years hundreds of students were attracted to the young man by the earnestness of his teachings and the boldness of his thought. It was quite the custom in those days for the professor to sit by the body and with an ivory-tipped wand point out the structures as they were laid bare by unskilled barber assistants. That method was not for VESALIUS. He must perforce with his own hands do the work and with his own hands demonstrate the subject regardless of the condition of the material. He began like all others who had preceded him in teaching GALEN and endeavored to illustrate by actual lesson the correctness of the writings of that venerated and presumably infallible authority. But in a short time he found that he had to choose between the correctness of the standard authority of ages and the correctness of his own vision. And he did not hesitate to describe things as he found them rather than as they were supposed to be. What his knife could uncover, what his eyes could see were to him absolute facts, and these he taught to his students regardless of what the great physician of Pergamus had said. His, was the pioneer research spirit. To satisfy it, more and more material for public demonstrations and private study had to be secured. His energy and personality was equal to the task. The judges graciously granted him the bodies of all executed criminals and even went so far as to set the date of execution so as to be most convenient for his dissections. The physicians also provided him with material as chance permitted. In addition VESALIUS did not hesitate to take upon himself the role of a "resurrectionist."

The young VESALIUS did not confine his labors to Padua for he was also professor in the oldest university, that of Bologna. For five years he taught at these two institutions of learning, and at the end of that time he put down in writing the results of his study and observations. His great and only work, "*Fabrica humani corporis*," appeared in Basel in 1543, when the author was but twenty-nine years of age. The painstaking character of the author is revealed not only in the text, but in the magnificent illustrations accompanying the same, which, though erroneously, have been ascribed to the great artist TITIAN. This great work, which as FOSTER says, marks "the beginning not only of modern anatomy, but of modern physiology", called forth a most virulent opposition on the part of his old teachers and others. To them GALEN was infallible and if the scalpel did not reveal the exact things described by the ancient writer it was easier to believe that the structure of the body had changed and not for the better, since his time rather than acknowledge that their great idol had erred. In the bitter struggle that followed VESALIUS became disheartened and lost courage, and what is more the desire for work. It is said that in a fit of passion he burned all his manuscripts. He abandoned his teaching career when only thirty years old and entered upon the duties of a court physician to EMPEROR CHARLES V, and to his successor. Although he lived twenty years longer, yet those years were utterly barren as compared with the phenomenally active period in his early life. Even had the desire for investigation returned, and undoubtedly it did at times, it would have been impossible to satisfy it living as he did in Inquisitorial Spain. Returning from a pilgrimage to Jerusalem he died on the Island of Zante in 1564 at the age of fifty.

The withdrawal of VESALIUS from the field of anatomy did not result in victory for his opponents. He stood for research and investigation as contrasted with dogma and interpretation. His methods and ideals continued to live fostered by his pupils and their successors. From his time on anatomy made rapid progress not only in Italy, but also in France, Holland and Germany and eventually in England. The dissections of the human body was recognized as essential to the training of the surgeon and physician. As a rule the bodies of executed criminals were turned over for this purpose, "in order that those who have done as much evil as they could when alive, may, after death, on the other hand, be of as much service and use as possible," or as stated in an English law, "that some further terror and peculiar mark of infamy might be added to the punishment after death."

Up to the beginning of the eighteenth ceutury the dissections continued to be in the nature of demonstrations. The need of personal contact was making itself more and more actively felt. It may be difficult to say who is entitled to the honor of introducing regular practical work to students. According to **WIENER**, **SALZMANN** required such work of the student at Strassburg in 1708. The famous Edinburgh chair of anatomy was established in 1720 with the elder **MONRO** and under the son and grandson acquired a reputation as few other places enjoyed. The introduction of practical dissection into London may be said to be due to the two **HUNTERS**, the elder of whom gave such instruction as early as 1748. The example set in England was soon followed in the Colonies, where the first dissections were made by the younger **SHIPPEN** in Philadelphia in 1762.

From this it will be seen that practical anatomy, as a distinct discipline, as actual laboratory work and not mere demonstrations, was well under way about the time of the Revolution; and that by the beginning of the nineteenth century was given in course or privately in every medical school. In this respect the European schools may be said to have been way ahead of the British and American since they possessed an abundant supply of material which was obtained by legal sanction and not through the aid of those who made their living by raising the dead.

VESALIUS in his short and brilliant scientific career may be said to have essentially created the new anatomy. He did more than that. Physiology and pathology owe a great deal to the Belgian master. His example or method was followed by others and applied to other lines of thought. It was a bold innovation to demand that authority be questioned or thrown aside unless it be supported by demonstrable facts. Nevertheless that thought is the basis of the modern science, and indeed of the whole of modern progress. It undermined the Galenism of old and eventually led to its complete overthrow. By way of contrast we may briefly consider in this connection another opponent of **GALEN**, the eccentric and erratic **PARACELSUS**, the founder of a school of medicine, if we may so call it, no less absurd and illogical than are the medical sects of our own day. **PARACELSUS** was an alchemist and physician who passed through a period of scepticism and nihilism as concerned GALEN'S teachings only to bring forth a doctrine replete with mysticism. The pathology of the time as handed down from GALEN, was based upon changes in the four humors,—blood, phlegm, yellow and black bile. With these humors properly balanced in the body a condition of health was maintained, when otherwise disordered function and disease was the result. With the advantage of his early chemical training PARACELSUS assailed the Galenic theory. He showed in a way that the humors were not elementary bodies and in their place substituted the three chemicals, salt, sulphur and mercury. These were used in a symbolic sense, representing the ash, the inflammable matter, and the volatile constituents. Animal and vegetable matter were classed under one head since they would burn, give off volatile matter and leave ashes. His philosophy would have nothing to do with the "boorish anatomy" of the "Italian jugglers" as he described his contemporary VESALIUS and his forerunners. Astrology and alchemy were for him the main pillars of medicine. Whatever may be said of PARACELSUS as a reformer, whether he be entitled or not to be called the LUTHER of medicine, the fact remains that it was he who brought chemistry and medicine closer together than ever was done before. Unlike VESALIUS, he preferred the wildest theorizing to the working out of facts. To him the overthrow of Galenism meant the establishing of his own dogmas. His was not a struggle between the old and new, but the substitution of one superstition for another. Indirectly, he benefited medicine through the bitter attacks on Galenism and the violent controversies in which he and his followers engaged. As WITHINGTON puts it, "The walls of the Galenic Jericho were tottering with age, and were already undermined by the knife of the anatomist, but it may also have been necessary that some one should blow the trumpet and we may admit that PARACELSUS blew vigorously."

The labors of VESALIUS and of his successors in the succeeding century, especially of the great HARVEY and of MALPIGHI, served to modify the humoral theory of GALEN in so far as the new knowledge of the circulation of the blood was made the basis of a hematopathology. The circulating blood was made responsible for the various anatomical abnormalities found by anatomists. Obviously, from the time the very first dissections were made, abnormalities were met with. Indeed, not infrequently diseased tissue was described as a normal condition. Not until normal anatomy had reached its full development was it possible to correlate the findings in disease and thus establish the new science of pathological anatomy. The credit of making this advance in the domain of disease, belongs to the Italian MORGAGNI. It is noteworthy that the "Father of Pathological Anatomy" was called to Padua to the same chair which VESALIUS left one hundred and seventy years before. Although MORGAGNI entered upon his duties in anatomy in 1714 it was not until 1761 when he had attained the ripe old age of eighty that he published his famous work "On the Seats and Causes of Disease," which was as epoch-making as that of VESALIUS, two hundred and twenty years before. He introduced an entirely new conception, which his great successor VIRCHOW, has aptly designated as "the anatomical thought in medicine." With its introduction the mystic dogmatism of ages fell at one blow and the way was opened for those brilliant advances in scientific medicine which have characterized the nineteenth century. MORGAGNI correlated disease with the visible changes observed in the body. He pointed out that each disease had its seat in a given tissue or organ. The question which the physician from that time on asked himself was: "Where is the disease." Pathological anatomy thus came into existence as a distinct discipline which joining hands with bedside observations made clinical medicine a relatively exact science. The discovery of percussion by AUENBRUGGER, of auscultation by the aid of the stethoscope by LAENNEC, made it possible to recognize disease processes during life. CORVISART, BOYLE, LOUIS, SKODA and ROKITANSKY will ever be remembered because of their connection with the quickening period of the new medicine.

Closely following MORGAGNI came the young and highly talented BICHAT who stands for histology as does MORGAGNI for pathological anatomy. In his "Anatomie Générale" which he published a year before his untimely death, in 1801, when thirty years of age, he described some twenty-one component tissues of the body and thus brought minute anatomy to the front. Strange as it may seem the father of histology did not make use of the microscope to any special extent in his studies. He effected his analyses almost entirely by means of chemical reagents, such as acids and alkalis. The perfection of the achromatic objective a quarter of a century later enabled the anatomist to utilize the microscope in the study of the minute structure of the body and since that time it has come about that histology has been regarded as practically synonymous with microscopic anatomy. It is to the lasting credit of BICHAT that he introduced the conception of the finer structure of the body and of the variable composition of the elementary tissues. Structure and composition go and should go hand in hand. The microscopic and chemical methods of study are complementary and the pursuit of one to the exclusion of the other is but to foster a one-sided development. It is always easier to follow the lines of least resistance, and hence it came about that when in the thirties the perfected microscope in the hands of SCHLEIDEN and SCHWANN revealed the finer architecture, the cellular structure, of plants and animals it was but natural for microscopic anatomy to forge rapidly its way to the front. With the opening of the second half of the nineteenth century, thanks to the labors of the aged KOELLIKER, of REMAK, and of others, histology became an established science, and minute anatomy took its place beside gross anatomy as a disciplinary study in medicine.

A step farther and the use of the microscope as an instrument of investigation was extended from the normal to the abnormal structure. MORGAGNI looked for the seat of the disease in the organs and tissues because he knew nothing of their finer structure. He narrowed down the search for the disease from the body as a whole to a distinct part or organ. The unfolding of histological science soon demonstrated that the answer to the all important question "Ubi est morbus" had to be transferred from the visible findings in the gross organ to the microscopic revelations in the constituent cells. With the publication of VIRCHOW'S classical work on "Cellular Pathology" in 1858, a new era opened in medicine in so far as it brought man to the very spot where the disease processes are going on. To cross the threshhold of the cell, to unravel the changes which take place in the normal and in the diseased cell is the next task. In that work the microscope will no longer be of value since the changes will involve alterations of molecules and not of cells. It is to the chemist and the physicist that medicine and the broader biology must look for the solution of the ever recurring puzzle of life. When that time comes it will indeed be a great advance but no greater than the progress inaugurated by the great masters in anatomy, VESALIUS and BICHAT, MORGAGNI and VIRCHOW.

The method of inquiry inaugurated by VIRCHOW was fruitful in the development of physiology, the daughter of anatomy. The earliest anatomists did not hesitate to appeal to vivisection in order to learn something of the functions or use of organs, a knowledge which obviously could not be gained from a mere dissection of lifeless remains. Had the genius of VESALIUS continued in the field of research it is not unlikely that the Galenic doctrine of circulation would have received its overthrow much earlier than it did. As it was that work remained for his successors, and above all, for the Englishman, WILLIAM HARVEY. It is three hundred years since HARVEY took his degree in medicine at Padua, whither he had gone to study under the renowned FABRICIUS, the worthy successor of VESALIUS. At the time he left Padua the pulmonary circulation was partially understood, but the general circulation was not even surmised. Shortly after his return to London he began the study of the motion of the heart, and in this work he made abundant use of vivisection. Not as fortunate as the great American physiologist, BEAUMONT, who, two centuries later, in the wilderness of Michigan at Mackinac, studied gastric digestion through an opening in the stomach of Alexis Saint Martin, HARVEY was obliged to make use of the animal experiment, and this he did in the very broadest possible manner, birds, fish, as well as mammals being freely utilized. NEWTON is said to have delayed the publication of his immortal work upon gravitation for twenty years, and in this respect HARVEY was not far behind him for it is certain that he taught his views for at least thirteen years before he gave them to the world in 1628. Though the appearance of his treatise created a most profound sensation among the physicians of the day, yet the experimental work was so convincing, the argumentation so logical, that the new view of the heart and of the circulation of the blood met with ready acceptance. The new doctrine of the circulation, however, was not wholly complete. While HARVEY made it certain that the blood passed from the minute arteries into the small veins he was obviously unable to demonstrate the connecting link, the microscopic capillaries. This work, however, was done in 1661, four years after HARVEY'S death, by the brilliant MALPIGHI, who was the first anatomist to make use of the newly discovered microscope. Before long the blood corpuscles were seen, and even the circulation itself actually demonstrated in the web of the frog's foot. The discovery of oxygen a century later furnished the keystone for the structure erected by HARVEY, and cleared up once for all the great problems of circulation and respiration.

If physiology failed in other lines to make as rapid and steady progress as did its parent anatomy, it was not because of a lack of enthusiastic and able workers, but chiefly because its advance was dependant upon the two infant sciences, physics and chemistry. Without these two no material development in physiology was possible. The new methods of the nineteenth century supplied it, however, with what it had lacked, and before the fifties were reached, it received the start which has made experimental physiology what it is today. The path of experiment had obviously been followed before and much indeed accomplished, but under CLAUDE BERNARD, MAGENDIE, JOHANNES MUELLER, LUDWIG, DUBOIS RAYMOND, FOSTER, and their pupils, the laboratory method was evolved and results of incalculable value to medicine achieved.

The introduction of the experimental method into physiology resulted in the development of a kindred science which had been slumbering through the ages past—namely, pharmacology. The study of the exact action of drugs is open to experiment the same as any problem in physiology; in fact, pharmacology is applied physiology. The mysticism which prevailed in the past in anatomy and physiology is only paralleled by the gross absurdities in therapeutics, some of which persist even to the present day. It is not quite half a century since BUCHHEIM established the Dorpat Pharmacological Institute, the first laboratory of its kind. Since then the number has increased slowly but steadily. At the same time it must be confessed, the increase on this side of the Atlantic is by no means in keeping with that on the European continent.

To trace the early history of chemistry would be a matter of no little interest in itself, since it is intimately connected with that of its foster parents, medicine and pharmacy. I have already indicated the great influence which the crude chemical doctrines of PARACELSUS exerted upon modern medicine. His idea of the three elements, salt, mercury, and sulphur, he borrowed directly from his predecessor, BASIL VALENTINE, to whom chemistry owes much. The dominant idea was the search for the philosopher's stone, which, to the alchemists of old, would not only enable the transmutation of base metals into gold but would also supply the elixir vitae, a panacea for all human ills. While modern chemistry has forever parted ways with the philosopher's stone, the medicine of today is untiringly following the will o' the wisp in a modified form, in its search for the specific cure of disease. The triumphs in curative medicine which have already been achieved bid fair to be excelled in the approaching future. It was PARACELSUS, the contemporary of VESALIUS, who first called attention to the presence of active principles, the arcanum, in crude drugs. Mystic, though his conception of these substances was, it nevertheless led to the introduction of the pharmaceutical tinctures which are still with us. By some he is even credited with the introduction of laudanum, but the honor of this preparation more correctly belongs to England's great physician, SYDENHAM. PARACELSUS was also father to another thought which dominated chemical physiology well into the nineteenth century. He believed in the existence of a spiritual force, an archeus, or, as we would call it, the "vital principle," which governed all chemical processes in the body. This archeus was the supreme arbiter and when it properly directed the chemical change in the body health was maintained, when it failed to do so disease was the result. In the succeeding centuries a sharp line was drawn between the chemical changes in inorganic matter and in living bodies. In the latter the chemical laws were held to follow the behest of a vital principle, and were therefore necessarily beyond the ken of the investigator. When, however, WÖHLER, in 1828, achieved the artificial production of urea, the barrier which had persisted for so long was finally overthrown and chemistry, organic and physiological, entered upon its remarkable career. After all, however, if modern science has definitely overthrown the mystic vital principle which was presumed to hold the balance of power in the workings of the living cell, it will nevertheless be seen that the Paracelsian doctrine thus modified is still with us. When we speak of disease as perverted cell action we tacitly understand that the chemical changes going on within that body are no longer harmonious. So likewise health is looked upon as an evenly balanced chemical reaction.

Nearly a hundred years later these views of PARACELSUS were still further elaborated by his prototype, the Belgian chemist, VAN HELMONT. Air and water to him represented the ultimate elements of matter. To him we owe the term gas, which he applied to the newly discovered carbonic acid. To him also we owe the first important inquiry into the process of digestion. The fermentation of wine suggested to him that the digestion of food was due to ferments furnished by the spleen and bile. Digestion and fermentation had been compared by others, but VAN HELMONT'S presentation made the ferment feature thenceforth a fixed doctrine in medicine, the details of which were gradually elaborated with the development of anatomy and chemistry. And yet, with all the work that has been done upon the soluble ferments secreted by animals and plants we are today far from a positive knowledge as to their nature; so much so that there are those who would even hold that these mysterious agents represent not a chemical substance but rather a special form of energy.

Just as the discovery and perfection of the microscope exerted upon medical research a profound influence, and just as this instrument has become invaluable to the physician, so the introduction of the use of the balance into chemistry made it at once, so to speak, an exact science. Chemical changes were thus recognized, not as haphazard combinations in variable quantities but as definite reactions between fixed weights of the elements. Hence it is that the beginning of modern chemistry is usually ascribed to the work done by LAVOISIER, a hundred and twenty-five years ago.

The laboratory method in chemistry, and for that matter also the first work upon animal chemistry we owe to the great LIEBIG. But a little over seventy-five years have passed since the first chemical laboratory was built by him at Giessen, and yet in that short period of time what tremendous advances have been made in chemistry! Chemical laboratories, industrial and educational, dot the civilized world. It is scarcely fifty years since the chemical laboratory as a teaching and research institution found its way into this country. And, it is a matter of no little local pride and satisfaction to us to know that our own chemical laboratory was among the earliest, if not the earliest, in the United States.

The golden dawn of medicine in the seventeenth century brought forth another ray of light which, though obscured and unrecognized for two centuries, at last burst forth bright and clear and illumined a most important field, the mysterious and deadly communicable diseases. While the great HARVEY was forging, link by link, the chain of evidence which demonstrated the circulation of the blood, an obscure presbyter, KIRCHER by name, was endeavoring to satisfy himself that what he saw with the aid of the newly discovered microscope really existed and was not the product of a distorted imagination. After years of patient observation he was able to annouce the discovery of a new world, that of microscopic life. The simple microscope which he used gave him a magnification of only thirty-two diameters, but with it nevertheless he was able to see things which were invisible to the unaided eye. The constant presence of minute forms of life in putrefying liquids led him to examine the blood and pus from a case of bubonic plague, a disease which was widely prevalent in Europe at that time. In that material he saw bodies which he believed to be the cause of the disease, and it was this observation which led him to formulate the theory of living contagion, the germ theory of recent years. Obviously KIRCHER did not see the plague germ; that discovery was not made till but eight years ago. What he did see was probably pus cells and blood corpuscles.

A couple of decades later, the Dutch microscopist, VAN LEEUWENHOEK, working with far superior lenses, did actually see bacteria. Such was the modest beginning of bacteriology and of the germ theory. The latter doctrine was at first accepted, then ridiculed and wholly rejected. The theory of spontaneous generation took its place and for more than a century found ready adherents among the foremost men of science. The discovery of the relation of yeast to alcoholic fermentation in 1837 as well as the presence of cholera in Europe at that time led to the revival of the germ theory. As yet no one had ever seen a disease germ. And when eventually, early in the fifties the anthrax bacillus was discovered it was easier to believe it to be a crystal than the mythical cause of disease. Then followed the classical researches of the French chemist PASTEUR, upon fermentation and spontaneous generation. The former was definitely established as due to minute organisms, and the latter was effectively overthrown. Twenty-five years ago ROBERT KOCH demonstrated for all time that anthrax was caused by the anthrax bacillus, and from that time dates the young science of bacteriology. It would be out of place to detail the brilliant results which rapidly followed. The deadly diseases, one by one, were forced to disclose their cause. The knowledge of the specific organisms thus gained has been utilized as every one knows in the prevention and even cure of these diseases. Surgery and medicine reaped the benefit of the laboratory work thus inaugurated. The first Hygienic Institute was established by PETTENKOFFER, a pupil of LIEBIG, as early as 1866, but it was the heuristic researches of KOCH and of PASTEUR that led to establishment of similar laboratories in nearly every European university. Here, again, thanks to the energy and foresight of our VAUGHAN, our alma mater took the lead among American universities and established the first hygienic laboratory on this continent.

The laboratory or new method in science, inaugurated in anatomy but emphasized in chemistry, was promptly appreciated and imitated by investigators in other sciences. Thus, it has come about that in the short period of fifty years every department of science has provided itself with well equipped laboratories. It is one of the functions of the laboratory to teach the beginner, but teaching is not the beginning and the end, the *raison d'être* of its existence. Science is advanced only by investigation, and in order to be able to carry on research work the student must be trained, hence the need of that teaching which will impart the power to work, the ability to carry on independent investigations. Hence, also, the greater function of a laboratory as a place for research. Just as we are benefitted by the knowledge which the labors of our predecessors have revealed, just so it is our duty to work, to try to produce something, some addition to the common stock of knowledge, no matter how small that contribution may be. It is not given to everyone to make epoch-making discoveries. Those belong to the great men of genius toward whom we can look for encouragement, whose work we can admire and modestly strive to emulate. With a high purpose and with hard work the goal can be reached.

In thus briefly and perhaps disjointly recounting the evolution of the modern laboratory spirit in medicine, I trust that one thought will remain with you. The onward and upward evolution in the search for truth has left the old school, the old medicine, far behind in the shadowy past. In its place we have the new school, the new medicine based upon the solid rock of experimental research. It is this scientific medicine of today which keeping in touch with all progress in all branches of knowledge, strives to unravel the mystery of life, seeks for the cause of things as well as the means of prevention and cure.

MEMOIRS.

A PLEA FOR MORE SCIENTIFIC PRESCRIBING.*

BY WALTER J. WILSON, JR., M. D., DETROIT, MICHIGAN.
REGISTERED PHARMACIST; EX-HOUSE PHYSICIAN, HARPER HOSPITAL.

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IN looking over our present-day medical journals we are struck with the number of advertisements of drugs with which the manufacturers assure us we shall be able to abort or eradicate diseases over which the profession at large has seemingly little control. Likewise, we are almost appalled at the quantity and quality of the mail matter left at our doors, the cost of which with the salary of the agents employed, must entail enormous expense upon various concerns. Remedies for every known disease in which we are told we may place absolute confidence, are exploited by these means. Specifics for diphtheria promising ninety-nine per cent cures when used according to directions, were advertised to the profession some years ago, before the advent of antidiphtheritic serum, as today they are advertised for other diseases for which no such universally successful remedy has been discovered. Indeed, it is the boast of some concerns that many physicians practically use their literature as text-books and aids to diagnosis, prescribing their remedies in a way very likely laid down by some chemist who never saw a case of the disease in question. It is the tendency of man in all the departments of life to use that of which he hears most, as truly the physician as the layman, and consequently if a few leading men will indorse some new remedy, hundreds will follow their recommendation. What, then, should we do to counteract this tendency to rely on advertised cure-alls, and what should be our attitude toward new remedies?

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* Read before the DETROIT MEDICAL SOCIETY.

In order to correct the evil here mentioned, we must commence with the physician while in college, and teach him in such a way that he will not be obliged to look outside of himself for help in prescribing. As now taught, he learns a great deal of materia medica and therapeutics; but it is in too general a way. It is practically impossible to learn every remedy thoroughly, to which attention is now given in our text-books, but it is attempted. We ought to teach the drugs representative of a class in every detail, note any great differences in the members of the group, and then leave to the student the further development of each drug as he desires. Experimental knowledge should also be secured by the observing of the action of the principal remedies on the lower animals What we see with our eyes in action rather than in print, sticks to us.

A thorough knowledge of drugs presupposes a knowledge of chemical combination, but yet this should receive especial attention, and also the principles of pharmacy should be laid down. Many after graduation will settle down in the country, and necessity will drive them to compounding their own prescriptions, so that it is incumbent upon our colleges to fit them for this duty. How fluid extracts, tinctures, waters, pills, capsules, tablets, ointments, et cetera, are made, should be exemplified before the class, so that the physician when called upon may be able to perform these operations, and in fact, otherwise, he is hardly able to give directions to others as to compounding his prescriptions. To this end, in the courses in dispensing now received, instead of relying for instruction simply upon the prescriptions that come in from the dispensary physicians, a systematic course covering all essential operations in pharmacy should be followed and the student made acquainted with all the apparatus ordinarily used in the preparation of drugs for prescriptions and the manipulations attendant thereto. The metric system being used in all scientific works of medicine and pharmacy should alone be taught, and likewise used in prescribing.

The student should also be made acquainted with the national works on drugs, the "United States Pharmacopeia," and the "National Formulary," which are combined with accounts of new drugs in the "United States Dispensatory," a book which it is advisable for all the members of the profession to possess. It is absolutely essential for the physician to have at his finger's ends the knowledge contained in these works on the drugs he uses, for the former work contains all official drugs, and the latter contains some unofficial drugs, and combinations under scientific names, often foisted upon as proprietaries at exhorbitant prices, which are exceedingly serviceable and in daily use. Some very common mistakes would not be made if only careful study of these works were the rule. For instance, syrupus ipecacuanhæ and syrupus scillæ, containing acetic acid are incompatible with alkalies, and yet they are often combined with carbonate of ammonium with its consequent decomposition. Errors in solubility are also general, in particular, potassium chlorate being prescribed in such quantity as to necessitate either making a shake mixture, or filtering, which would make a preparation of more elegant appearance. Drugs in alcoholic solution are combined with so much water as to cause precipitation. The "National Formulary" preparation of syrupus glycyrrhizæ makes about the best vehicle for quinin, while the ordinary preparation extemporaneously put up from the fluid extract of licorice brings out the taste owing to the alcohol. So, in its preparation of syrup of yerba santa, used for the same purpose, we have the best preparation of its kind. Almost all firms putting up the various elixirs, effervescent salts, pills, et cetera, which are not in the "Pharmacopeia," follow the "National Formulary" directions, and if we were to signify them by appending N. F. we would have an absolute uniformity in all articles of this kind, and could prescribe them under scientific names and assure a fair price to the consumer. If we have gained sufficient knowledge of the chemistry of drugs to put up a compatible preparation, and of pharmaceutical niceties to make it palatable, we will not be so ready to listen to agents of houses pushing probably some physician's prescription that they have secured, for which they have a fancy name and a fancy price. We will, then, when we are at the bedside of our patients make up our symptomatic treatment from the subjective and objective symptoms as we discern them, and combine it or not, as we please, with etiological treatment as we make our diagnosis. In this way, we have a specific reason for every drug we use, and we must know it, and its physiological action to prescribe it. The use of ready-made combinations in general, is unscientific, for although palatable, yet containing several drugs we probably do not remember all the ingredients and only have in our minds the obtaining of effects from two or three of the articles remembered, or have an idea of getting an illy defined general undependable effect. This is especially true of many tablets, the prescribing of which otherwise than of single drugs, with perhaps a few adjuvants or correctives is unscientific and uncalled for. In passing, it may be noted that when prescribing tablets we ought to specify what kind of a tablet we desire, whether tablet triturate or compressed tablet, and whether chocolate coated or not. Also, when we prescribe such standard formula preparations as elixir of iron, quinin and strychnin, we ought to remember that there are three preparations, elixir of iron, quinin, and strychnin, elixir of iron, quinin, and strychnin phosphates, and elixir of cinchona, iron, and strychnin, which have a different dosage, and slightly differing ingredients, and specify which one we wish.

Then, in prescribing we ought to write with ink and use those pads which leave the physician a carbon copy for purposes of reference, and of laying the blame in case of mistake at the proper door. Many now do not even write in Latin, and the patient after the first filling of the prescription, many times goes the rounds of the various stores without the prescription or a copy, provided only one article is prescribed, and buys where he can do so to the best advantage, and goes on using it without further medical advice. We ought also to be particular to specify no refilling without orders, and see that it is carried out, for we all know how one prescription often goes the rounds of the neighborhood, even when containing what might be toxic doses for some of the recipients, and how patients will repeat prescriptions containing large doses of febrifuges for months after the temperature is normal.

What, now, shall be our attitude to the new preparations? In the first place, we ought to have nothing to do with them if they are advertised to the general public, have not scientific names, or the entire combination is not known to us. Many of them being simply palatable mixtures have no real value to the physician who is able to write prescriptions for anything he desires, and the most of them are exceedingly reprehensible because they have names which are fanciful, and are easily read by the patients who soon get to use them on their own responsibility as we find in all drug stores there is a considerable demand for articles of this kind following the prescription of some physicians. Many persons treat their own cases of rheumatism, self-diagnosed, with a fancifully named preparation of salicylic acid, widely advertised in medical journals. Some neurasthenics use a new preparation of phosphorus under their own direction, first having their attention called to it by their physicians prescriptions. So much is thus true, that sometimes we see these wares advertised by druggists in the daily newspapers. We, in this way lose much legitimate business, and the patient as certainly does himself great damage. In this connection, it is greatly to be regretted that some physicians ally themselves with manufacturing houses and push a set of proprietaries for them which have all the ordinary disadvantages of articles of this kind with the added one that they cannot be stocked by druggists generally, and, in cases of emergency, cannot be obtained immediately, often causing great pain to the patient and annoyance to his friends.

Then we ought to have a better way of getting acquainted with all new preparations. As it is now, we are expected to write for literature to the firms putting up these products, thus securing simply the favorable side. Would we write to an interested party who wishes us to buy a piece of property in a distant city and take his word for it, and buy before seeing, or having some capable friend see it for us? Surely not. Neither ought we to use drugs which we can not test unless some disinterested authority sets his seal on the statements of the manufacturer. Our medical colleges could render us an inestimable service in this regard. Our teachers are men who in the college laboratory can investigate to some extent the merits of new drugs, verifying chemical and biological statements before we use them. Or, perhaps, the American Medical Association could appoint a standing committee for such work, and thus we would constantly have some authority for using these preparations. This is really a matter of public safety, and if ever we have a physician a member of the President's cabinet, such work could with advantage be done by his bureau, or if we had a National Board of Health it might come under its jurisdiction. It is to be feared that, under present conditions, many men for the sake of seeing their names in print, lend their influence to drugs of questionable value, and it would be far better if the giving of testimonials directly to manufacturing houses would cease, and, for the present, remarks concerning drugs be made in medical societies where in discussion both sides of the matter would be heard. As it is, we often give commendation to some remedy which finally is sold directly to the public, with the doctors' testimonials on the bottle wrappers.

We, then, possessing the power of lessening much self-prescribing and controlling various drug evils, should band together as societies, local, state, and national, and speak in no uncertain tones to the profession as to the evil of prescribing unknown or fancifully named remedies, and seek to have laws passed requiring that on all bottles of medicines sold directly to the public, labels stating the ingredients in the exact proportions be placed, or at least that the manufacturers make such report to the proper state or national authority, as a preparatory step to a higher standard, such as is maintained in many Continental nations, which declares patent medicines unlawful, and we should take the position that all medicines put up for physicians' use shall be accompanied with a sworn report as to the ingredients. Thus the scientific manufacture of drugs will be stimulated; the people will not be shamefully cheated, aud the physician will take his proper place in the community as the adviser of the taking or not taking of medicine.

TRANSACTIONS.

ANN ARBOR MEDICAL CLUB.

STATED MEETING, FEBRUARY 12, 1902.

THE PRESIDENT, ROBERT C. BOURLAND, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

EXHIBITION OF SPECIMENS.

PRACTICE OF J. G. LYNDS, M. D., ANN ARBOR.

A NEST OF FIBROIDS.

I HAVE here a few specimens which I recently removed, some of which I have been requested to present here by members of the Club. This first specimen which I show you is a nest of ten fibroids which I removed by enucleation from a pelvis yesterday. The case is of particular interest because of the symptoms of ectopic pregnancy present and a mistaken diagnosis.

Patient's history is this, taken on January 23: Her age is thirty years and she has been married six months. She has always had painful periods, but for the past two years they have been very painful, necessitating a week in bed and the use of anodynes. There is no pain or backache between periods, and her general health is good. The periods were regular to December, the last one occurring about December 10, which would make it now (February 12) past time for the second period. The breasts are full and plump and somewhat sensitive, but not more so than usual at time of period. She has had no nausea or vomiting. For the last two weeks she has had pain in the right inguinal region, which has been gradually becoming worse, and now is quite severe at times.

Examination showed the abdomen sensitive, especially in the right inguinal region. The external organs presented no abnormalities. Digital examination showed the whole uterus crowded over to the left by a sensitive enlargement occupying the right portion of the pelvis. Some large sensitive hemorrhoids prevented a rectal examination. All the parts were very sensitive and a satisfactory examination without an anesthetic was impossible. This she refused to take for an examination, saying I must be ready and do whatever proved necessary while she was anesthetized. A few days later I examined her again and confirmed the before-mentioned conditions and also explored the uterus. Although digital and bimanual exploration indicated an enlargement of the organ I could only pass the sound two and three-quarter inches. Two weeks later, when it was past time for the second period, and there was no sign of it, the enlargement in the right side apparently increasing and the uterus empty, so far as I could ascertain by repeated explorations, I made a diagnosis of ectopic pregnancy and advised immediate operation.

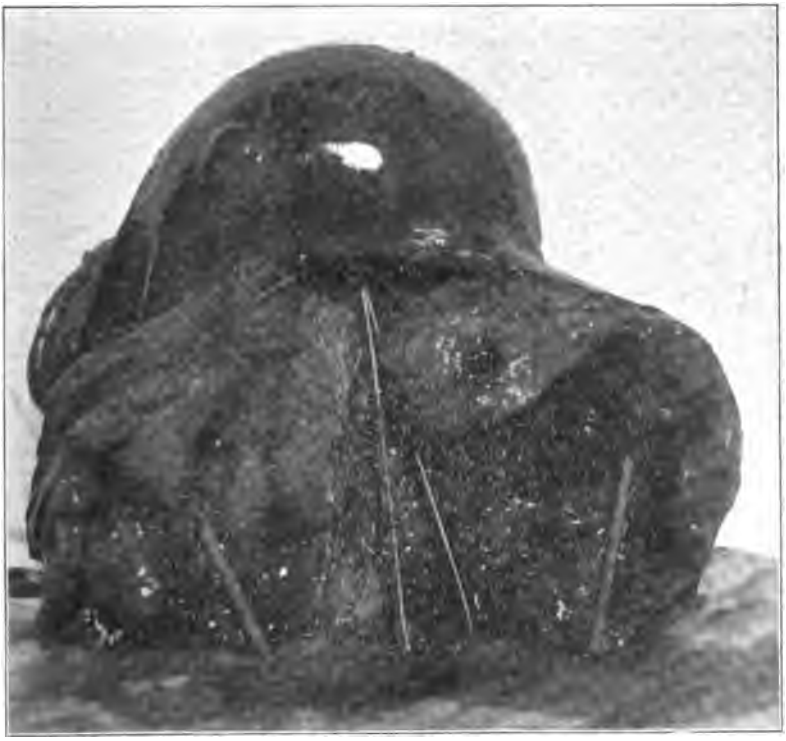
Yesterday I did the operation, first curetting the uterus. Here I found the interior greater than previously, the curette passing in three and three-quarter inches. I curetted away a large amount of soft tissue, apparently thickened endometrium, but nothing resembling fetus or membranes. After curetting I removed a number of large angry hemorrhoids. I then opened the abdomen by a median incision and found this growth, as you see, about as large as a good-sized orange, but longer, occupying the right broad ligament. The elongated fallopian tube ran along the top of the growth, and while thickened and enlarged it showed nothing resembling a tubal pregnancy two months advanced. This growth was enucleated through an incision made through the posterior surface of the broad ligament, and the nine others which you see here, some larger, some smaller, were enucleated from the uterine walls and ligaments in close proximity, the rents closed, and hemorrhage controlled by catgut sutures. The ovaries were slightly cystic but not sufficient to demand removal of more than the diseased portions, so neither ovaries, tubes, or uterus, was removed.

The patient stood the operation very well, and now, thirty-six hours later, has a temperature of 99° and a pulse of 100, with everything looking favorable for her recovery.

NOTE.—June 30: Patient made a good recovery and is now feeling better than for years. Periods are regular and free from pain or other disturbance.

A UTERUS CONTAINING BREAKING-DOWN FIBROIDS AND PATHOLOGIC FETUS.

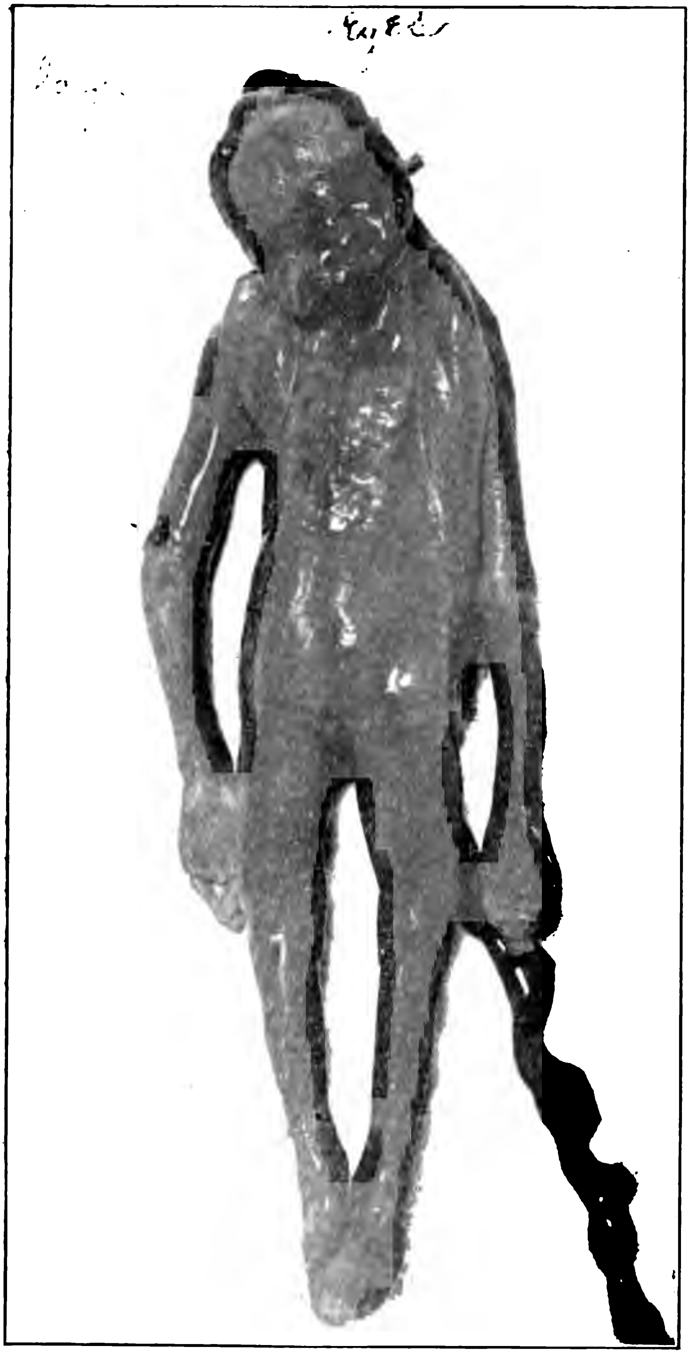
THIS specimen I removed three or four weeks ago, and at the request of some of the members of the Club I now present it to you.



UTERUS WITH BREAKING DOWN FIBROIDS CONTAINING PUS.

A woman aged forty-six years; married twenty-five years; three children, the youngest eighteen years. Patient was well up to one year ago, but since then she has been failing in general health, having pelvic pain and profuse periods up to two months ago, since which time she has had none. She has been in bed for the past six weeks, having chills, sweats, and a temperature sometimes above and sometimes below normal. There have been no changes in her breasts, but her stomach is irritable and she has but little appetite.

These facts I ascertained from her family physician, who



DEFORMED FETUS FROM UTERUS SHOWN IN FIRST PHOTOENGRAVING.

lived in the country, and ten miles from the patient. He also described an enlargement in the pelvis and abdomen, extending to the umbilicus and filling the pelvis. It was he who decided on the operation that was necessary and asked me to send a nurse and come to operate.

When I arrived she was prepared for the operation and ready for the anesthetic, so I made no examination until she was anesthetized and on the table. I then found a firm, movable growth as before described, irregular in outline, soft in some parts, but generally firm and hard. Diagnosing a breaking-down fibroid I proceeded to remove it forthwith. I could not positively eliminate pregnancy, but felt certain that did it exist it was to be considered only as a complication of the other more serious condition. The patient was in a very low, weak condition, and while I considered the operation a critical one I also considered it the only chance for her recovery.

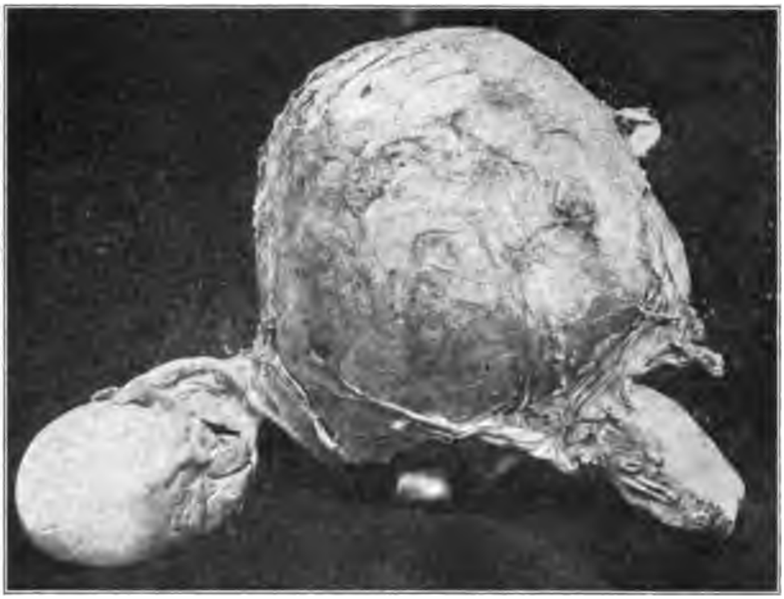
I opened the abdomen by a median incision, separated the adhesions and delivered the tumor, which proved to be, as you see, the uterus, large and irregular, with three distinct growths in its walls. Recognizing the contents of these to be fluid, and having every reason to suspect it to be pus, I removed them together with the uterus and appendages intact, drained through the vagina and closed the abdominal wound. The patient stood the operation fairly and I left her in very good condition with an average chance for recovery. The specimen you see shows the three distinct growths, two of which have been cut open. These contained a thick purulent fluid. Abscesses I should call them, resulting from broken-down fibroid tumors without doubt. The larger cavity you see easily contains my fist, the second one is nearly as large, while the third, as yet unopened, is the largest of the three. Inside the uterus was this fetus and secundines. It had evidently been dead for some time, and as you see is itself a pathological specimen, being minus the top of the head and having an open spinal column as far down as the lumbar region.

The patient seemed to do fairly well for some days, but the shock was too much for her weakened condition and she died about a week after the operation.

UTERINE AND OVARIAN TUMORS.

THIS specimen, which DOCTOR WARTHIN tells me is a fibrosarcoma, was removed six days ago. The patient, aged forty-three years had been married twenty years, but had never been pregnant. She came to me six weeks ago to have this tumor removed. My examination at that time revealed a very dense, smooth, hard enlargement, extending three inches above the umbilicus and filling the lower part of the abdomen and pelvis. It also revealed a serious organic lesion of the heart as well as a large amount of pus and albumen in the urine. I told her I could not operate on her at that time, but, if the heart and kidney conditions would improve with treatment I would consider the matter later. After remaining under my care for a week with little if any improvement she took her medicine and went home, saying that when she was better she would return. As a matter of fact I litte expected to ever see her again, but ten days ago she walked into my office, saying she had returned for the operation and wanted it performed right away.

An examination at this time showed a considerable improvement in the heart and the almost entire disappearance of the pus and albumen from the urine. Thinking the kidney symptoms and possibly also some of the disturbance of the heart might come from the pressure of the growth I told her I would give her the best chance I possibly could if she wished to take it. There was no doubt in her mind as to what she wanted. She had come with her mind fully made up to have that operation let the result be what it might so it took her no time to decide.



UTERINE FIBRO-SARCOMA AND OVARIAN CYST.

The anesthetic—ether—was administered by DOCTOR CLOUCHEK, who can tell you she had a double mitral lesion of such gravity that he hesitated about proceeding with the anesthetic. There was a loud murmur but compensation at this time was fair. Only at one time during the operation the doctor tells me, did the heart show any disturbance. This was during the delivery of the tumor when it seemed suddenly to cease beating for a short time, but soon beat all right again, giving no further trouble.

As you see I removed the entire uterus and appendages, the left ovary being enlarged to the size of my fist. The dense, solid growth you see developed for the most part in the posterior wall, the uterine cavity, three times its normal length, being here in front quite close to the surface.

While hunting in the abdomen for a missing sponge I palpated the kidneys and found the right one prolapsed, very movable, nodular, and fully twice as large as normal. The left one was also enlarged about one-third but in normal position.

The patient was back in bed in a little over one-half hour. She suffered remarkably little from shock and from the first she secreted large quantities of urine, passing three to four ounces every hour for the first thirty-six hours, and since then has passed ten to fifteen ounces every three or four hours. It contains some pus and albumen, but unless some unlooked for complications arise she will recover—for the time being at least.

NOTE.—July 10: Patient made an uninterrupted recovery and is now feeling well, although the urine still contains some pus and albumen.

A LARGE ABDOMINAL TUMOR.

THIS was an unusually large abdominal tumor as you see by the photograph taken at the time of operation.

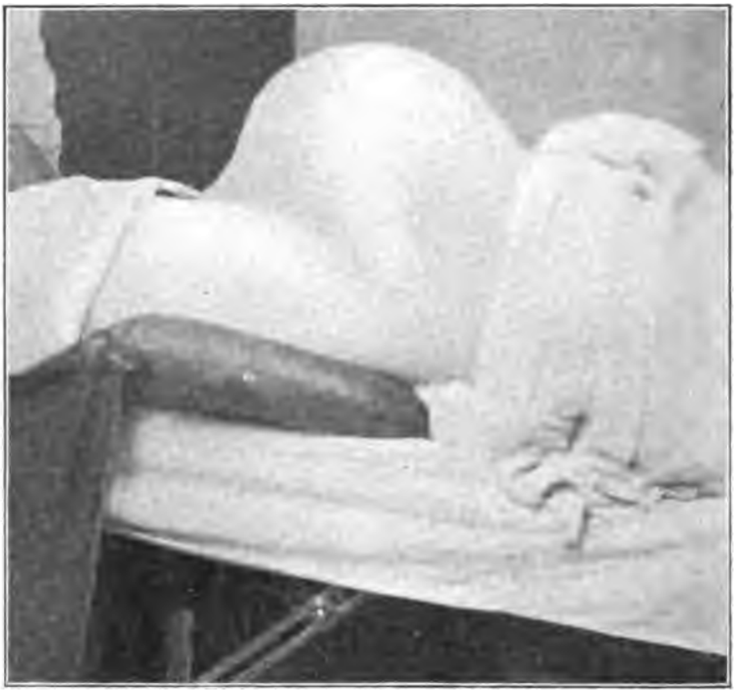
The patient's age was fifty-three years, and her youngest child was sixteen years. Her periods had been irregular for two years, she one time going for five months without any. One and a half years ago she had a long profuse hemorrhage. Twice since she has had profuse flowing spells but of less severity. For the past few weeks she has had a light, bloody discharge from the vagina. It is not watery or irritating and no clots have passed. Patient has been stout for some years and thinks she has had a tumor for at least two years. She has had a swollen leg since the birth of her youngest child, but now both are swollen and pit on pressure. For the last two weeks she has enlarged very rapidly and now can neither stand, sit or lie down with any comfort, the pressure is so great She has no trouble with her stomach or bowels except from the pressure. Respiration is very much disturbed and the heart considerably so. The urine is scanty and high colored but otherwise normal.

Examination of the abdomen showed it to be greatly distended, dullness extending to region above the umbilicus, fluctuation over most of the abdomen and ballottement at the lower part. There is edema of chest and abdominal walls and of the legs. Pelvic examination revealed some hard masses about the uterus.

My diagnosis was, probably ruptured ovarion tumor and ascites, the growth very probably being malignant.

The case was a desperate one but there seemed a chance by operation to at least relieve the extreme dyspnea and suffering, even though it failed to prolong her life.

She and her family being anxious to give her any chance there was, I operated as soon as she could be prepared, and removed between seventy and eighty pounds of fluid and tumor. I found ovarian tumors on both sides, which had become malignant (carcinomatous) and ruptured. I found the omentum greatly infiltrated and thickened throughout its entire extent, and it was a large one extending down to the pelvis. The retroperitoneal glands also were generally involved. All these tissues show carcinomatous deposits. Here the tumor sacks, omentum and enlarged glands removed give you some idea of the condition. My first impulse was to remove the fluid and close the abdomen as it seemed impossible to remove enough of the growth to do any good; but after separating adhesions and sponging out I decided to attempt the removal of the ovarian tumors at least. This I succeeded in doing together with broad ligaments and tubes. Then I ligated the omentum close to the bowel and removed that, and then dissected out some of the largest glands, washed out thoroughly, put several quarts of saline solution in the abdomen and closed the wound.



APPEARANCE OF ABDOMEN BEFORE OPERATION.

She did poorly for a week, but now, nearly two weeks since the operation, is doing as well as one could ask, and I see no reason why she should not, for the present recover.

NOTE.—July 10: Patient made an apparently perfect recovery, is now doing housework and feeling well, and there are no signs of trouble in the abdomen or elsewhere.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
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AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

The Prevalence of Gout.—Futcher, in a very instructive and interesting article on "Gout in the United States" (*Journal American Medical Association*, October 25, 1902), takes exception to the generally expressed views that this disease is almost unknown in this country. As proof he offers an analysis of thirty-six cases of undoubted gout which were admitted to the medical wards of Johns Hopkins Hospital, during a period of thirteen years, out of a total of 13,400 cases, giving a per cent ot 0.24. This is a surprisingly large per cent when compared with the 0.37 per cent of Saint Bartholomew's Hospital, London. This hospital is chosen for comparison, because it draws its patients from the goutiest section of the world.

In this analysis of cases the most interesting etiologic points brought out are the following: In only three cases was there a definite statement that parent or grandparent had suffered from gout. In nine other cases there was a history of arthritic attacks called rheumatism in the immediate antecedents. The author thinks these attacks were probably gout, giving a per cent of thirty-three with a family history of gout. Statistics usually place this per cent at fifty to sixty. Thirty-four of the thirty-six cases used alcohol, chiefly beer. Food was thought to have practically no influence, In eight cases, or twenty-two per cent, lead was an important etiologic factor. Twenty-seven of the thirty-six patients were native born. The greatest number of cases — twelve — occurred between forty-one and fifty. All thirty-six cases were males, all whites and nearly all from the lower walks of life.

In a number of cases Futcher followed the uric acid curve by the Hopkins method, or Folin's modification of it, and almost invariably found that before the onset of the acute symptoms the uric acid is below and often far below 0.4 grams, the lower normal limit for the daily excretion in health. On the second or third day after the beginning of the acute symptoms the uric acid curve steadily rises, reaching 0.8 to 1.0 gram, the upper normal limit for the daily uric acid increased excretion, or even higher than this. With the subsidence of the acute symptoms the curve gradually falls below the lower limit for normal, and in the interval between the acute attacks the excretion may be only 0.1 to 0.2 gram daily. In one very marked chronic case he failed to find any uric acid excreted whatever on certain days during the interval. The author found that the uric acid and phosphoric acid curves ran almost parallel.

Clinical Types. — There were in all three acute, and thirty-three chronic cases. In seventeen of the thirty-three, tophi were present; in fifteen over the cartilage of one or both ears; in four in the subcutaneous tissue over elbow-joints, and in one over the patella. Here they resembled the subcutaneous fibroid nodules of rheumatism. In three cases suppurative bursitis occurred, resulting from the depositing sodium biurate, in and about the bursal sac. Suppuration of the tophi occurred in five cases.

Complications.—There was one case of parotitis, one of pericarditis, one of retrocedent gout with symptoms simulating intestinal obstruction. There was evidence of disease of the kidneys in the majority of cases; albuminuria in twenty-seven, hyalin and granular casts in twenty-three. Arteriosclerosis was present in twenty-three cases; mitral systolic murmurs in five.

Many gouty cases are mistaken for rheumatism. Four of this series of cases were repeatedly diagnosed as such, the appearance of tophi later revealing their true nature.

In doubtful cases suspicious nodules should be removed and examined microscopically. The finding of characteristic acicular needles of sodium biurate immediately settles the diagnosis as one of gout. J. R. A.

Foreign Body in the Stomach. The subject of foreign bodies in the stomach is always an interesting one, especially when they are of such a size as to render them impassable. Doctor J. C. Oliver reports such a case in *The Journal of the American Medical Association*, Number XIV, Volume XXXIX, 1902.

A ten year old girl ate plentifully of persimmons. A few hours later she complained of severe gastric pain. Examination of the abdomen revealed a hard mass in the epigastric region extending beyond the median line to the right and under the ribs on the left side. The lump changed position with the position of the patient. There was no tenderness on pressure. The patient was given emetics and cathartics. Aside from the vomiting of some persimmon seeds nothing was accomplished by this means.

A laparotomy was made, Two large masses entirely separate and distinct from each other were felt in the stomach, one at the plyoric end, the other at the cardiac. The lumps were hard and could not be broken with the fingers. Curved scissors were used and the masses removed through the stomach incision piecemeal. They were found to be made up of persimmon seeds, shells, twigs, leaves, et cetera. The patient made a good recovery.

Quite a number of cases are on record wherein masses of considerable size have been removed from the stomach. Many of these have been found to be made up of hair. Of the reported cases very few occurred in the feeble minded or insane. Masses weighing four pounds have been removed. All the cases that have been operated on have recovered. It is an interesting fact that of twenty-one cases collected by Jacobson no diagonsis previous to operation or postmortem had been made. D. M. C.

Tuberculin Obtained from Bovine Tubercle Bacilli Contrasted with Tuberculin Obtained from the Human Tubercle Bacilli, in their Effects on Human Patients.—Penrose (*Journal of Tuberculosis*, Volume IV, Number IV) reports the results of his investigations on the effects of tuberculins obtained from bovine tubercle bacilli on human subjects. This experiment seems to have been omitted in the investigations leading up to and substantiating the views expressed by Koch at the British Congress of Tuberculosis. This experiment is certainly a harmless one and enables us to at least contrast the bacilli. The author obtained pure cultures of bovine and human tubercle bacilli from Doctor Theobold Smith. He had tuberculin made from these cultures, both being made by identically the same process as other tuberculins. They were contrasted in several instances with tuberculin obtained from Doctor Trudeau's laboratory and proved to be up to the mark in every respect.

The author reports cases and gives temperature curves of a patient with tuberculosis of wrist-joint, tested first with Trudeau's tuberculin, then with his human tuberculin, and then with his bovine tuberculin. In all instances a typical reaction occurred, but in the case of the bovine tuberculin the reaction was more marked, the acme reached one hour sooner, and then the temperature fell to 99°, where it remained for some time. A more decided reaction was given with bovine tuberculin than with the human tuberculin although used several days apart.

In conclusion the author says the products of the bovine and human tubercle bacilli seem identical in their effects on human tuberculous subjects. The bovine tuberculin appears to be the stronger, suggesting that the bacilli themselves are identical but the bovine bacilli more virulent. These observations are being conducted in the Johns Hopkins Hospital. D. M. C.

SURGERY.

BY HENRY O. WALKER, M. D., DETROIT, MICHIGAN.
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AND
CYRENUS GAVITT DARLING, M. D., ANN ARBOR, MICHIGAN.
LECTURER ON MINOR AND GENITOURINARY SURGERY AND DEMONSTRATOR OF SURGERY IN THE UNIVERSITY OF MICHIGAN.

Appendicitis.—At the meeting of the American Association of Obstetricians and Gynecologists held at Washington, District of Columbia, September 16, 17 and 18, 1902, a surgical disputation upon appendicitis was introduced by Doctor John B. Deaver, of Philadelphia, in a paper entitled "The Irrational Starvation Treatment of Appendicitis (*American Journal of Obstetrics and Diseases of Women and Children*, November, 1902). He argued that an acute appendicitis was a progressive acute infection, the arrest of which was best accomplished by the removal of the infected appendix, and when done timely, "there should be no mortality." He took for his lesson and warning against the so-called "rest" or starvation treatment a series of ninety-eight cases that had been operated upon at the German Hospital from June 15, 1902, to September 1, 1902. Twenty-seven of these cases were of the chronic type and recovered, while seventy-one were acute in character and had a death record of twelve, sixteen and nine-tenths per cent. Of this number thirty-two of the acute typical type infection, confined to the appendix and close area, all recovered with the exception of one, a man aged sixty-four years, who died suddenly nine days afterward from cardiac dilatation. Postmortem revealed a healthy peritoneum. Of the remaining thirty-nine cases, which for various reasons were permitted to go on until the appendix had become perforated and necrotic with abscess, systemic infection and a great or less grave peritonitis, twenty-two were operated upon within thirty-six hours with a mortality of five, twenty-two and seven-tenths per cent. In three of these cases there was free pus throughout the abdominal cavity and all died within twenty-four to forty-eight hours. Autopsy revealed general peritonitis. Case four was a large walled-off abscess, and death followed by continued septic invasion. Case five had been treated six weeks for gastritis with "a sort of a modified 'rest' treatment." At the operation there was pus, adhesions and infected right tube. Patient died on the fifth day. The remaining cases (seventeen) had starvation treatment after the method of Doctor Ochsner. All cases were admitted after the fifth day of onset with different degrees of intensity of the characteristic appendiceal symptoms. With this treatment the abdominal distension diminished in thirteen, while in four there was no improvement in four to seven days. All were operated upon within seven to fifteen days after admission, having given the "rest" treatment a fair trial, and six of the seventeen died, a mortality of thirty-five and three-tenths per cent. All autopsies revealed more or less general suppurative peritonitis with pus pockets. In conclusion he said: (1) That an early operation, preferably in the stage of appendiceal colic, is the only rational procedure, and is the only treatment which will reduce the mortality in acute appendicitis to insignificant figures; (2) that the so-called "rest" treatment of appendicitis fails to check peritoneal inflammation and will in the majority of instances harm the patient.

The next paper was by Doctor Joseph Price, of Philadelphia, entitled "Surgical Relations that the Region of the Appendix Bears to Pelvic Suppuration and Operative Complications." He spoke of the frequent complications of the appendix with a suppurative tube and ovary, and said that when doing an operation upon the tube it would be well to see whether the appendix is healthy, and if there is any suspicion of involvement, to remove it. He declared that "the danger is so slight, the operation so simple, so little time and surgery are required for the safe and clean removal of a very common offender, that I am strongly inclined to urge its removal in all cases while doing pelvic surgery." In very many cases sent for operation upon the pelvic organs, the cause is found in the appendix and the patient is relieved of all symptoms by its removal. Operation cannot be done too early in the acute attack, as the mortality increases with the increase of time from the inception. He related cases of his own and of others showing the necessity of doing complete operations, by seeing that all pus pockets were opened, intestines freed of lymph, and the peritoneal cavity washed out and drained. Lastly, he said that "the general peritonitis, the partial destruction of important organs, and the invasion of other cavities would never occur if practitioners were all good, wideawake diagnosticians and could be more speedily convinced of the importance of early operative interference."

Doctor Miles F. Porter, of Fort Wayne, Indiana, reported "Some Unusual Cases of Appendicitis and the Lessons They Teach." The history of all the cases, with many complications in most of them and mostly of long standing, showed conclusively to his mind the necessity of prompt operative action, and that no man could foretell in any case the pathologic changes that would take place until he had seen them.

The next and last paper was by Doctor W. W. Seymour, of Troy, New York, the title being "Four Cases Illustrating the Difficulties of Diagnosticating Appendicitis." He stated that while a diagnosis of appendicitis is generally one of ease, yet here and there operators report instances of mistaken diagnosis. In four cases reported the first three presented all the characteristic symptoms of an extra active appendicitis, demanding immediate operative action, which was done. In no instance was the appendix affected. The first case was a small sloughing gangrenous fibroid the size of an English walnut. The second was a solid suppurating tumor of the right ovary the size of a closed fist, and the third an ovarian cyst of deep claret color, flecked with black, and twisted pedicle, holding a quart. Prompt recovery in each case. The fourth case had exquisite tenderness at McBurney's point, but lacked some of the other characteristic symptoms, and by waiting and careful examination revealed increased resonance at the base of the left lung.

The discussion of these papers by such men as McMurtry, Hall, Porter, Murphy, Carstens, McDonald, Baker and others indicated that the trend of opinion (without dissent) was in favor of prompt surgical action as against delay and medication in the treatment of appendicitis. H. O. W.

PEDIATRICS.

By ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
PROFESSOR OF PEDIATRICS IN THE MICHIGAN COLLEGE OF MEDICINE AND SURGERY.

Intussusception.—Bernard Pitts, in discussing the treatment of intussusception in children (*Canadian Practitioner*, October, 1901), ventures the following conclusions: (1) Try inflations only when the case is seen within a few hours of onset, and is not of very acute character. In the great majority of hospital cases it is better to open the abdomen at once. (2) Inflation may be tried in certain other cases for the purpose of reducing the main portion to the intussusception, and enabling the incision to be made directly over the cecum. (3) When reduction is found impossible in chronic cases, a resection may be generally done through an incision in the ensheathing bowel. (4) In acute cases, and especially if gangrene is present, or the condition of the bowel requires its removal, a wide resection should be undertaken as rapidly as possible, and the ends brought outside of the abdomen; continuity should be restored at a subsequent operation. (5) In exceptional cases of enteric intussusception, resection and immediate restoration of continuity gives the only chance.

Deformities. — W. R. Townsend (*American Medical Journal*, September 13, 1902) says practically all the deformities due to poliomyelitis or infantile paralysis can be prevented as the original lesion does not produce a deformity, but simply a loss of power in the muscles affected. The deformity being due to (1) gravity; (2) gravity of nonparalyzed muscles; (3) arrested development and growth of tissue in proximity to the muscles paralyzed; (4) the result of weight applied to the weakened structures; (5) all other causes. He says further that noncongenital club-foot may be divided into (1) simple acquired; (2) paralytic; (3) traumatic; and that nearly all are prevented by careful treatment. Many deformities are attributed to faulty decubitus in illness. These nearly all can be prevented. For instance, a flexed knee, a deviated spine, a rheumatic joint, a shortened lower extremity leading to spinal curvature, faulty position in school, bandaging joint for disease, sprains, wrist-drop. Many treat the disease but pay no attention to the pervention of the deformity which may occur. Prevention of deformity, therefore, should be clearly impressed on all those who are called upon to treat any condition that may lead to it, and many a patient will be spared much inconvenience and subsequent trouble. The prevention of deformity must be attended to by the physician, as the surgeon is seldom called until it has occurred. The methods used for preventing any particular deformity will suggest themselves to the physician or can be found in most of the works on orthopedic surgery.

Rickets and Sterilized Milk. — E. Aussett (*L'Echo Medicale*, May, 1902) considers that Comby holds exaggerated views in regard to the part played by sterilized milk in producing rickets. The writer records six hundred eighty-two cases observed by him. Four hundred fifty-six of these were bottle fed, fifty-nine breast and bottle fed, and one hundred sixty-seven exclusively breast fed. His conclusions are as follows: (1) It is an exaggerated view to hold that sterilized milk causes rickets: it is the wrong and injudicious use of the milk that produces the disease. (2) A breast fed child may become rachitic if bad hygienic principles cause it to develop prolonged and serious digestive disturbance. (3) It is necessary to establish numerous milk stations where mothers may find, not only good milk, but, above all, accurate and stringent directions as to the mode of administering the same. In this way a considerable diminution in the number of cases of rickets will occur. (4) Sterilized milk judiciously given is of the greatest value. In wealthy families its use should be considered preferable to the employment of wet nurses.

Disease of Remote Parts Caused by Infection of the Tonsil.—F. Forchheimer (*Archives of Pediatrics*, September, 1902) calls attention to lesions in remote parts, which had their primary seat of infection in the tonsil. For example, diphtheria, verified by bacteriological research. Erysipelas in some instances has occurred as primary tonsilar erysipelas. Tuberculosis may enter through the tonsil (Freeman). In articular rheumatism, infection is first in the tonsil, (Menzer). In pneumonia, measles, and scarlatina, according to Menzer, the primary infection takes place in the tonsil, and in relating the above the author wishes to add two more remote pathological conditions due to infection of the tonsils, appendicitis and jaundice. He says we must admit that bacteria are taken up by the tonsils and are carried to the general circulation, either by the lymphatic current or by the blood, for bacteria are found in the blood (Adami and others) in all infections. If we have in addition to the presence of bacteria in the blood a "locus minoris resistentiæ," we have the conditions necessary to explain the production of local manifestations from infection of the tonsils by bacteria. He reports a case of appendicitis developing three days after follicular angina, and he believes it with other cases of similar nature, due to the bacteria in the blood from infection of tonsils. The other class of cases reported are those of jaundice following infection of the tonsils. The jaundice developed in five cases in from three to ten days after the angina tonsilarum. He concludes that bacteria being in the blood from any local infection, leave the body by way of the liver and jaundice may follow. He says further: "I do not believe all these infectious diseases begin in the tonsils, but in dealing with such cases we have a septicemia and that a large number of these general infections begin in the tonsils, a fact which has been overlooked."

OPHTHALMOLOGY.

By WALTER ROBERT PARKER, B. S., M. D., Detroit, Michigan.
CLINICAL ASSISTANT IN OPHTHALMOLOGY IN THE DETROIT COLLEGE OF MEDICINE.

A New Substitute for Silver Nitrate.—Albert C. Barnes and Herman Hille (*Medical Record*, May, 1902) describe a new compound, argyrol or silver vitelline, which contain thirty per cent of silver. It is readily soluble, an ounce being taken up by less than a dessertspoonful of water. The salt has been extensively used by genitourinary surgeons with great satisfaction. The discoverers predict that argyrol will be of great use in inflammatory diseases of the eye and lachrymal operations, such as ophthalmia neonatorum, purulent conjunctivitis, dacryocystitis, et cetera. It is claimed the salt penetrates the deeper tissues, and is nonirritating. Silver vitelline contains thirty per cent of silver, or about half the amount of silver nitrate.

Influenza of the Eye.—Kymowitsch (*Archives of Ophthalmology*, September), after comparative bacteriologic investigations and experiments on animals, draws the following conclusions:

(1) The bacilli found in the secretion of acute conjunctivitis and in the sputum of influenza are morphologically identical.

(2) The condition of growth in various media and the appearance of the cultures are absolutely similar. Each of these microorganisms placed in the same conditions goes through the same forms of development. Both have the same tendency to symbiosis with the same particular microorganisms.

(3) The effect of each on the animal organism is exactly similar. Both are toxic without producing a general infection.

The writer concludes that the bacillus of acute conjunctivitis and the bacillus of influenza are the same, producing in the respiratory tract influenza, and in the conjunctival sac acute conjunctivitis. The acute conjunctivits caused by the Koch-Weeks bacillus is therefore an influenza of the eye.

Visual Hygiene in the Public Schools.—The time has surely come (*American Medicine*) when it should be demanded of the state that adequate and scientific hygiene must be provided if school attendance is made compulsory. Those who have in general terms advocated this have often shrunk from definite and detailed description of what this means for fear of a charge of self-seeking and self-advertising. We must conquer such squeamishness, because as we progress (or regress) there is more danger from the great machine which with "grind" and "cramming" too often endangers the health and vision of the children. In every state the law should command that thoroughgoing testing of the eyes of every pupil should be assured by a competent refractionist, either supplied by the parents or furnished by the school authorities. The majority of young eyes are hyperopic and astigmatic, and lifelong harm may follow their use at a tender age without spectacles. There is an error all too prevalent already that eye-strain means everuse of a normal (or approximately normal) eye, whereas the term means the results of the use of an ametropic eye. A vast deal of the ill health and bad results charged generally to schooling and overcrowding, such as anorexia, nervousness, denutrition, headache, et cetera, are solely due to ametropia, which itself is not a disease (except in high myopia) but which with use of the eyes speedily begets disease.

THERAPEUTICS.

By DELOS LEONARD PARKER, Ph. B., M. D., Detroit, Michigan.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

The Employment of Digitalis and Aconite in the Treatment of Cardiac Disease.—Hare (*The Therapeutic Gazette*, August, 1902) presents an article under the above caption which is worthy of careful consideration by the therapeutist.

In the first place he calls attention to the fact that among the difficulties that beset the subject of the proper use of drugs in disease, one frequently of importance is the employment of remedies by physicians who have not a correct conception of the pathologic process underlying the condition they are undertaking to treat, nor a proper appreciation of the effects of the drugs, which they prescribe.

Certain remedies, he says, valuable in certain diseases, have in some instances been so abused as to cast discredit upon therapeutics in general. And in no class of cases has this been more prevalent than in those of cardiac disease. Here, for instance, it is most common for the physician to diagnose valvular disease, prescribe digitalis, and pay no attention to the condition of the heart muscle, blood-vessles, and that of the kidneys and liver. The dose of the drug is considered only with a view to avoid poisonous effects.

Doctor Hare thinks it would be more reasonable to study the condition of the heart walls alone and neglect the condition of the valves entirely if one were compelled to give attention to only one of these important portions of the heart. This of course is given by way of emphasis.

Besides studying the heart walls the physician should note carefully the arterial tension, pulse force and equally important attempt to discover whether there exists arteriocapillary fibrosis. To reach satisfactory conclusions in these matters the renal condition must be investigated in a thorough manner.

Concerning digitalis, Doctor Hare speaks highly, but says we are apt to forget that like all things that may do good it may also do harm. This result may be produced in the case of digitalis by doses either too large or too long continued or both. Occasionally large doses are needed at the outset of the treatment. Doctor Hare says he has often been surprised at the good results from one to two minims of an active physiologically tested tincture of digitalis, administered three or four times a day with the patient kept at rest.

In a certain number of cases of valvular disease of the heart Doctor Hare thinks that instead of artificial heart tonic there is indicated rest and that the good effects of this measure will often be aided by the administration of aconite. This drug has a steadying effect on the heart as has digitalis and yet has a sedative influence on the heart muscle in case of excessive compensation, and always a relaxing effect on the blood-vessels. In many cases the digitalis and aconite can be combined with advantage, even though they are regarded as physiological antagonists.

Doctor Hare closes his article with a reference to a large class of individuals, among whom physicians and bankers are conspicuous, who mistake the effects of an arteriocapillary fibrosis due to advancing age and the worries incident to their careers, for the effects of a lack of exercise, and thus mislead, by having recourse to exercise on the golf-field or by walking, simply aggravate the condition they strive to correct.

In treating such cases as these a quiet and careful mode of life should be insisted on until the remedies suited to the condition have been determined.

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

How Cleveland was Rid of Smallpox.—Under the above caption (*American Medicine*, September 6, 1902) the Ohio State Board of Health publishes in the September number of the *Ohio Sanitary Bulletin* a succinct statement of the facts regarding the management of smallpox in Cleveland since July 20, 1901, the date on which began the administration of its present health officer. The abandonment of vaccination by that official, his use of formaldehyd disinfection, his published statements regarding the efficacy of the latter method, and the widespread use of those statements by antivaccinationists, trade journals, and newspapers have been current news for the past year. In view of the many inquiries regarding the matter and of the harm that was being caused, the State Board deemed it wise to permit the health officer himself to explain matters by an official statement to the public. For that purpose he was invited to attend a meeting of the board held June 28, 1902. There he stated that he had stopped vaccination in Cleveland because impure virus had produced internal results, and that vaccination would be resumed when virus free from pathogenic organisms could be obtained. An investigating committee of the board met in Cleveland July 1, and decided to arrange for the purchase of such virus. After this was done, a second meeting was held July 28, when the health officer informed the committee that he had already made satisfactory arrangements for securing virus, and that he had appointed public vaccinators and instituted free vaccination. It was then agreed that the health officer should make, in response to an official inquiry, a public statement that would remove all misunderstanding regarding his attitude toward vaccination. This not having arrived by August 7, he was requested by letter to furnish such statement at once. In answer to this request an unsigned (probably by oversight) communication was received August 11, giving in detail the methods now being employed against smallpox in Cleveland. These include the appointment of vaccine physicians, house-to-house work in infected districts with vaccination of every person willing, disinfection, quarantine, et cetera. On this the board comments as follows:

As this statement in no way modifies or contradicts the claim that an epidemic of smallpox was arrested in Cleveland by disinfection, without vaccination—the only point at issue—and as this claim has done, and is still doing, great harm to the cause of vaccination, the board deems it unwise to refrain longer from publishing all the facts in connection with smallpox in Cleveland. To allow the statement to go uncorrected may induce other communities to abandon this most useful of all measures in fighting smallpox—vaccination. Records show that the city of Cleveland was handed over to the present health officer July

20, 1901, practically freed from smallpox, and that it remained so for some months, but that another epidemic, which is of a severer type than the previous one, has been going on for several months in spite of disinfection. It will be a relief to all communities endangered by smallpox in Cleveland to know that in addition to other proper measures to suppress the disease, vaccination is now being vigorously pushed.

The Ohio State Board of Health is worthy of commendation for the stand it has taken in this affair by insisting on vaccination and by making public all the facts from the beginning. In view of the publicity given former statements we deem the subject of sufficient importance to merit this somewhat lengthy review.

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN.
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On the Pathological Changes in Hodgkin's Disease, with Special Reference to its Relation to Tuberculosis.—Dorothy M. Reed (*The Johns Hopkins Hospital Reports*, Volume X). From the study of eight cases of Hodgkin's disease at the Johns Hopkins Hospital the following conclusions regarding the pathology of this affection were drawn: The microscopical features were enlargement of the lymph glands, the glands remaining discrete even after they have reached individually an enormous size. No infiltration of the capsule occurs, the growth being freely movable from the skin and surrounding tissues. The consistency of the glands varies greatly. The smaller glands are usually somewhat soft and elastic, the larger ones may be quite firm and hard. Glands of different consistency are usually present in the same growth. No large areas of degeneration are present unless there is a necrosis due to a secondary infection. On section the glands may present a semitranslucent grayish surface broken by intersecting opaque yellowish lines of fibrous tissue. The younger growths show a uniform grayish surface, slightly more opaque than normal and bulging on section. Hemorrhagic points may be present. The metastases in the viscera present a similar appearance. They may vary in size from a pin-point to large nodules. Their color is usually grayish-white and they are sharply marked off from the affected tissue. Their outline is irregular and they appear to invade the organ in different directions. On section they resemble the lymph glands. The microscopical picture is a variable one, but it is believed that the different appearances represent different stages in the process. The essential feature is a proliferation of the flat endothelial cells lining the reticulum of the lymph sinuses, as well as of the similar cells found in the centers of the lymph follicles. Mitotic figures are frequently seen in these cells. Dilatation of the blood-vessels and of the lymph sinuses is usually a marked feature of the early stage. The proliferation of the endothelial cells destroys the normal structures of the gland by obliterating the distinction between the follicles and the sinuses. An occasional follicle may be the only clue to the original organ. In proliferation the endothelial cells may form large epithelioid cells with vesicular nuclei. Giant cells are formed in great numbers. Only occasionally are the nuclei of these arranged peripherally. The lymphoid cells are numerous in the early stages. Plasma cells are often observed in as great numbers as the lymphocytes. Eosinophiles are usually very numerous. As the process advances the connective tissue shows marked proliferation; bands of connective tissue starting from the blood-vessels break up the gland into coarse lobules. The tissue originally rich in cells undergoes a fibrous transformation. This process may continue until the coarse connective tissue bands are more prominent than the cellular islands inclosed by them. The capsule of the gland shows no change beyond that of thickening. The blood-vessels may become obliterated by a periarterial thickening. Hyaline change of the connective tissue may take place. Large areas interpreted as anemic necrosis are frequently observed. These show completely degenerated cells with fragmented nuclei. No microorganisms were demonstrated in these foci. "Kugelzellen" and free hyaline bodies are abundant in some specimens. Typical mast-cells were seen in a few cases. Endothelial phagocytic cells and cells containing yellowish pigment granules are often found. The metastatic nodules consist of exactly the same cellular structure as the glandular growth. The first appearance of these lymphomatous areas is seen in the proliferation of connective tissue cells and lymphocytes forming a small focus anywhere in the tissue of the organ. As this increases in size by proliferation the different cells previously described appear. As the nodules expand the tissue of the organ is pushed aside and flattens out to form an apparent capsule. Several of these nodules may coalesce and form large irregular masses. Tuberculosis was found in only one case and was regarded as a secondary infection. In the other seven cases neither tubercle formation nor tubercle bacilli were found, and no other microorganisms were demonstrated by any of the staining methods. No amyloid was apparent in any of the cases reported.

On the whole the pathological picture suggests strongly a chronic inflammatory process. There is no reason to believe it to be of the nature of a malignant neoplasm. No such picture is shown in tuberculosis, lymphatic leukemia or true sarcoma. In such tissues eosinophilia is not observed. In glands the seat of a chronic infection of known origin somewhat similar changes have been observed.

Hodgkin's disease has therefore a peculiar and typical histological picture consisting of proliferations of the endothelial and reticular cells, formations of lymphoid cells and characteristic giant cells, gradual increase of connective tissue resulting in fibrosis, and in most of the specimens in the presence of great numbers of eosinophiles. The term Hodgkin's disease should therefore be limited to the designation of a distinct clinical and pathological entity, the main features of which are painless progressive glandular enlargements, usually starting in the cervical region without the blood changes of leukemia. The growth presents a specific histological picture, not a simple hyperplasia but changes suggesting a chronic inflammatory process. The microscopical examination is sufficient for the diagnosis. Animal inoculation may confirm the decision by its negative result. Eosinophiles are usually present in great numbers in such growths, but not invariably. Their presence strengthens the diagnosis. The pathological agent is as yet undiscovered. Tuberculosis has no direct relation to the subject.

Paracolon Infection, together with the Report of a Fatal Case with Autopsy.—Longcope (*The American Journal of the Medical Sciences*, August, 1902). Within the last few years careful observations made upon the blood of typhoid fever patients have shown that in a small number of cases, none of which give the Widal reaction, an organism can be cultivated from the blood during life, which differs in many essential points from the bacillus typhosus. This organism was first accurately described by Widal, who called it bacillus paracoli. Recently Schottmueller has substituted the name of paratyphoid bacillus and proposes to call those cases in which the bacillus occurs "paratyphoid fever" to distinguish them from true typhoid fever. Twenty-six cases of paratyphoid fever have been reported up to the present time. The rarity of the reported cases and the fact that fatal cases are rare have prevented pathological studies of the disease. Libman has reported a case of cholecystitis in which the paracolon bacillus was isolated during life from the gall-bladder, blood and urinary bladder. The bacillus reacted in dilutions of one to fifty with the patient's serum, but a Widal reaction was also obtained in dilutions of one to two hundred and fifty. At autopsy, healing ulcers were found in the ileum. The presence of the Widal in such high dilutions gives little doubt that the case was really one of typhoid with a secondary infection by the paracolon bacillus. The primary seat of infection, the gall-bladder, is of great interest. Another autopsy is reported by Strong. The patient had been ill for twenty-six days and there was continued high temperature. The autopsy, forty-two hours after death, revealed the signs of an acute infection. The spleen was enlarged and soft, the mesenteric glands swollen and some of those along the small intestine were hemorrhagic. Both the large and small intestines were normal throughout. From the speen a bacillus was obtained which resembled Cushing's Bacillus "O."

The case reported by Longcope is the first one in which the pathology of paracolon infection is given in detail. The patient, aged twenty-two years had been ill about twelve days, with history of chill, headache, nosebleed, pain in the abdomen and right side. Lungs and heart negative. Spleen palpable, and over abdomen, chest and back there were a few suggestive rose spots. Temperature 106°. After admission to the hospital the patient became delirious, and gradually developed coma. Immediately before death the rectal temperature was 108°. Blood-cultures made from the median basilic vein before death showed in all the presence of an actively motile typhoid-like bacillus. Autopsy was made twenty-eight hours after death. The positive pathological findings only are given here: Heart muscle very soft; lungs extremely congested and show moderate edema. Spleen enlarged, weighing four hundred and sixty grammes, very soft, capsule smooth; on section the pulp is soft and friable, and the general cut surface is of a dull reddish-gray color. The Malpighian bodies are visible and throughout the pulp there are a few small hemorrhages. Trabeculæ not increased. Liver somewhat enlarged and quite soft. On section the surface presents the brownish-gray color of cloudy swelling. The consistency of the kidneys is decreased, the capsules strip easily, the surface is smooth; on section they show the characteristic appearance of cloudy swelling. In the intestines the solitary follicles are visible as small gray points, one millimetre in diameter. In the small intestines there was no swelling either of the solitary follicles or of Peyer's patches, and with the exception of a few areas in which the mucous contains gas blebs, the ileum, jejunum and duodenum showed nothing abnormal. Appendix normal. Throughout the large and small intestines large numbers of ascaris lumbricoides were found. Stomach and esophagus apparently normal. The mesenteric lymph glands were not enlarged and appeared of normal consistency. A few contained gas blebs. Cerebral vessels were congested. Otherwise no pathological changes were found at autopsy. The microscopical examination of the organs showed marked congestion, cloudy swelling of heart, liver and kidneys, focal necroses of liver; no endothelioid proliferation in spleen and no red-cell carrying phagocytes. The examination of mesenteric glands and intestines was practically negative. The bacillus cultivated from the heart's blood, lung, liver and spleen agreed with that isolated from the blood during life. It is a small actively motile organism that does not stain by Gram's method. The morphology is that of bacillus typhosus. The growth appears as a whitish moisture on potato, and in bouillon there is diffuse clouding without pellicle formation. Gelatin is not liquefied. Litmus milk is slightly acidified during the first twenty-four hours, but at the end of forty-eight hours the acidity does not increase and there is a distinct greenish-blue cream ring. By the third day the milk regains its neutral tint and after a week there is a faint alkaline reaction which gradually deepens until by the fourteenth day the color is a deep navy blue. Glucose, dextrose, and mannite are all fermented, but there is no fermentation of lactose or saccharose. In glucose much less gas is formed than with the colon bacillus, the latter being used for control tests. Indol is not formed. Without doubt this case can therefore be regarded as an uncomplicated paracolon infection. The fact that the paracolon bacillus is capable of producing a fatal infection distinct from typhoid fever is therefore proved. Specific lesions were wanting; the wide distribution of the bacillus in the body, its constant occurrence in the circulating blood and the absence [illegible] lesions all lead to the conclusion that the condition is [illegible] e of general infection. Since it is now fairly well established that typhoid is not a local disease, but rather a general infection with localized lesions, it is not surprising that the clinical picture in these two affections should be so similar, particularly so when the close relationship between the typhoid and paracolon bacillus is considered.

RECENT PUBLICATIONS.

REVIEWS.

PRACTICE OF MEDICINE.*

LOCKWOOD'S, in its second edition, has been thoroughly revised and brought to date. The admirable classification of Osler has been followed in arranging the subject matter. It is clearly and concisely written, and so paragraphed as to direct the attention of the uninitiated to important points. The pathology of the various disease processes is summarized in a general way but not detailed as to microscopical findings. It is a question whether this is not a distinct advantage for the general reader, who is likely to be overwhelmed by an extensive description of microscopical pathological details, and as a result fail to carry away a good general picture of the morbid anatomy, by means of which he can explain physical signs and clinical symptoms. In order to keep pace with the advance of medical knowledge new sections have been devoted to bubonic plague, gastroptosis, Reichman's disease, gastric analysis, et cetera. The sections on malaria and disease of the digestive tract have been largely rewritten. A section is devoted to the consideration of nervous diseases. Temperature charts and illustrations have been increased in number, and render the book more interesting and instructive. Considerable attention is devoted to treatment. The book of course is not large enough to be used as an encyclopedic book of reference, and should not be compared with Osler, but it is practical and clear, and will appeal to the medical student and general practitioner. J. R. A.

* Philadelphia and London: W. B. Saunders & Company.

A TEXT-BOOK OF PHARMACOLOGY AND SOME ALLIED SCIENCES.*

THE writer of this book has attempted, as he states in his preface, to produce a volume on the subject of pharmacology that will serve the double purpose of text-book and reference book combined. In the prosecution of this plan the author has collected the numerous drugs connected with his subject into a few groups, each of which is characterized by a typical action or set of actions. In assigning the different drugs to these respective groups he has been guided not by the properties that have been attached to them by tradition and accidental observation, but by the actions that have been shown to belong to them through scientific research, carried out chiefly along the line of animal experimentation reinforced by therapeutic application. Each group contains data descriptive of variations from the type governing it. Points in dispute are given with the ones most generally accepted made prominent. At the close of each group common indications for the use of the remedies included are given, together with a list of the preparations of each, with their doses in both metric and ordinary terms. The book contains also a section devoted to the technique of laboratory work in which are given clear directions for animal experimentation and certain branches of chemical investigation, such as physiologic, toxicologic and purity tests for drugs. This part of the work would seem to fill admirably the long felt want of a satisfactory list of rules for directing in proper channels students or practitioners in medicine who have a natural bent toward original research work, or who, by the character of their duties and surroundings are forced to take upon themselves the task of prosecuting medical studies of an investigating nature. The book throughout is a plea for the general employment of scientific methods in determining the value of therapeutic agents and is so arranged and written as to make this plea a most effective one. D. L. P.

* By Torald Sollmann, M. D., Assistant Professor of Pharmacology and Materia Medica in the Medical Department of Western Reserve University. Illustrated. Philadelphia and London: W. B. Saunders & Company.

THE DISEASES OF THE RESPIRATORY ORGANS.*

This little work contains much valuable information not to be found in the text-books, and is a compilation from many sources. It will prove very useful to any physician who has little time to search the libraries for needed information.

A. D. H.

* By William F. Waugh, A. M., M. D., Professor of Practice and Clinical Medicine, Illinois Medical College, et cetera. Pages 221. Price $1.00 net. Chicago: G. P. Engelhard & Company, 1901.

DIAGNOSIS OF NERVOUS AND MENTAL DISEASES.*

In this small book the author has certainly given to the student and general practician, yes, even to the specialist himself, a valuable aid in diagnosis. While he makes no "attempt to add to the facts of medicine," his method of arranging is new, and such as to greatly facilitate the making of differential diagnoses.

*Howell T. Pershing, M. D., Professor of Nervous and Mental Diseases in the University of Denver, Colorado. P. Blakiston's Son & Company. Price $1.25. A. W. I.

The Physician and Surgeon

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ORIGINAL ARTICLES.

MEMOIRS.

THE USE AND ABUSE OF THE UTERINE CURETTE.*

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[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THAT the uterine curette, when properly employed, is a most serviceable instrument cannot be denied. On the other hand, it is equally true that great harm can result from the unskillful use of this simple instrument. Like the obstetric forceps the curette has become a part of the surgical equipment of the general practitioner. Whatever may be his views regarding the advisability of entering the domain of abdominal surgery, there exists no doubt about the use of the curette. He uses it freely, whenever he considers the conditions of the case demand it, and naturally it follows that the benefits or harm resulting from its use will depend upon his interpretation of symptoms and his knowledge of the proper technique of the operative procedure.

Knowing this to be true, I have thought the brief time at my disposal could not be spent more profitably than in passing in review the various indications for the use of the curette, the manner in which it should be employed and the evil results attending its misapplication.

The subject may well be considered under two heads: (1) The use of the curette in the unimpregnated uterus. (2) The use of the curette in the puerperal uterus.

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*Read by invitation before the JACKSON COUNTY MEDICAL SOCIETY, October 14, 1902.

(1) THE USE OF THE CURETTE IN THE UNIMPREGNATED UTERUS.

In everyday practical work with the curette there are three classes of cases which call for its use: (*a*) Cases in which the endometrium is the seat of chronic inflammatory changes, or cases of chronic endometritis. (*b*) Cases in which a differential diagnosis must be made between endometritis and malignant disease. (*c*) Cases of advanced carcinoma of the cervix or the body of the uterus or both.

(*a*)—ENDOMETRITIS.—This will furnish by far the largest proportion of cases calling for the use of the curette. Unfortunately there is still the greatest confusion of ideas regarding this most common form of uterine derangement. There is no uniformity regarding the basis of classification of the different varieties of the inflammatory process. One author classifies the disorder entirely from a clinical standpoint, while another divides it according to differences revealed by the microscope. From a scientific point of view the latter classification is by far the more accurate, and consequently, the more satisfactory. The difficulty lies in the impossibility of diagnosticating definitely these varieties by clinical signs alone.

As a basis for the consideration of this phase of our subject I have been led to collect and summarize seventy-two cases which were curetted in the gynecologic service of the University Hospital during eleven months, beginning October 1, of last year. Since every case was subjected to careful microscopic examination by PROFESSOR A. S. WARTHIN and his assistants, I am in a position to adopt a classification along pathologic lines. And as careful histories were taken in all the cases, it is my hope that by combining clinical symptoms with the objective findings, certain data will be at our command from which certain rules of procedure can be adopted for future cases.

Speaking broadly, there are three principal types of endometrial inflammation. First, glandular endometritis, where the glandular elements are chiefly involved in the inflammatory process. Second, interstitial endometritis where the connective tissue elements are involved at the expense of the glandular; and third, glandular and interstitial endometritis where the first and second forms are combined in varying proportions. Of the seventy-two cases, thirty-eight, or over fifty per cent could be classed under the glandular type of the disease. Seven were of the interstitial variety, nineteen were a mixture of the glandular and interstitial varieties, while in eight cases it was found that the removed endometrium was practically normal. Of the thirty-eight cases of glandular endometritis, fourteen were of moderate severity, while in eight the glandular elements were only affected, slightly; in seven there was severe glandular endometritis; cystic disease was a complication in two, while the glands were markedly hypertrophic in three instances. In three cases adenomatous areas were noted; finally, in one case the glandular involvement was not universal but only marked in certain areas.

Size of the Uterus in Endometritis. — Unless the endometrial changes have reached the atrophic stage, rather a rare condition, the uterus is usually larger than normal. I find that this is borne out by measurements made at the time of the curetting. The average length of the uterus in the sixty-four cases where endometritis existed was three and one-third inches, while the average length in the eight cases where the endometrium was normal was only two and seven-eighths inches. It must be remembered, however, that this is the average length in a considerable number of cases and that there were quite a few cases where the uteri measured less than normal. Hence, the size of the organ is not an exact indicator of the presence or absence of the endometrial disease.

Position of the Uterus in Endometritis. — The careful operator will never lose sight of the fact that a diseased condition of one part of the female generative tract usually means morbid conditions in other portions of the genitalia. A gonorrheal endometritis often means a like inflammatory condition in the tube, pelvic peritoneum and possibly in the ovary. An endometritis may be the cause or the result of a retrodisplaced uterus. Quite common is it to find a lacerated cervix, endometritis, retrodisplaced uterus and diseased adnexa in the same woman, one inflammatory process or one defect being the cause of or resulting from the other.

These statements are borne out by the findings in the sixty-four cases of endometritis just considered. The position of the uterus was abnormal in thirty-eight cases. The organ was retrodisplaced in thirty patients, prolapsed in six, and carried upward by inflammatory processes in two.

It is interesting to note that this proportion of retrodisplacements does not hold in the eight cases where the endometrium was normal, as only one uterus was noted as being in a backward position. That this relative disproportion in the number of malpositions in the two series of cases cannot be explained by the greater preponderance of ruptured perinei in those who have endometritis, is shown by the fact that in the sixty-four cases of endometrits thirty-four, or fifty-three per cent, were noted as having the perineum ruptured, while five out of the eight normal cases, or sixty per cent, had the same lack of support due to childbirth. Hence it may be concluded that endometrial inflammation, together with laceration of the cervix, and the subsequent subinvolution of the uterus, are powerful factors in the malposition of that organ.

The Discharge in Endometritis. — Estimates of the amount of uterine discharge in a given series of cases must always be relative and not absolute, because of the impossibility of its accurate measurement. One must depend upon the individual patient's opinion as to the amount of the leucorrheal discharge. What to one would seem large and require the constant wearing of a napkin, to another would appear but slight and of no consequence. Still, when the same examiner interrogates a considerable number of patients, and has an opportunity of placing his estimate upon the accuracy of their replies, the amount of the discharge may be fairly well arrived at.

I find that in the sixty-four cases of endometritis the discharge was stated to be absent in nine, large in amount in twenty-two, while in thirty-three it is recorded as slight but constant, or small in amount and present only occasionally. Comparing these figures with those to be obtained in the eight normal cases, we find that in no case was the discharge recorded as being absent. In four it was slight, in three large in amount and in one only moderate, percentages not varying greatly from those found in the other series.

Condition of the Appendages in Endometritis.—How often, and in what degree are the appendages affected in cases of endometritis? As has been stated, inflammatory disease of the endometrium is liable to spread to the appendages. That this is not always the case is shown by a consideration of our group of cases, where the diagnosis of diseased adnexa was in the great majority of instances, confirmed by an abdominal operation. In four cases the condition of the appendages is not recorded. In thirty, or one-half of the remaining sixty cases, they were noted as diseased. This included all varieties of inflammatory disease, as well as the degenerative processes. In the eight cases free from endometritis, the proportion of adnexa affected was still greater, as six out of the eight cases were abnormal in some particular, five showing inflammatory changes. From the data presented, it would seem justifiable to draw the following conclusions;

(1) The uterus, as a rule, is increased in size when its endo-

metrium is the seat of chronic inflammatory changes. There are, however, so many exceptions that the size of the organ cannot be taken as an indication of the presence or absence of inflammation.

(2) Endometritis is either one of the causes or one of the consequences of retrodisplacement of the uterus.

(3) The discharge in endometritis varies in amount and constancy and may even be entirely absent. It cannot be taken as a pathognomonic sign of endometrial inflammation

(4) In at least one-half of the cases of endometritis the appendages as well as the uterus are diseased.

What rules, if any, can be deduced from the above which will serve us as guides for the use of the curette in the treatment of endometritis?

First, it would seem to be advisable to always curette the uterus whenever other portions of the genital tract are operated upon. The reason for this is found in our inability to state positively that a given endometrium is normal. In only eight cases out of the seventy-two which we have considered has it been found practically normal. The only objections which could be raised against this routine use of the curette would be a possible harm which would result from the curettage of a normal endometrium. Practical experience has shown that such fear is groundless, as the mucosa is regenerated in a short time, if the curette has been employed in a proper manner.

Second, no one should curette the uterus for the cure of endometritis unless he is competent to diagnosticate and treat concomitant pathologic conditions in the appendages. He should also be able to retain a displaced uterus in its normal position by operative or other means, and finally he should have the requisite knowledge whereby he can restore the integrity of the pelvic floor, so that the pelvic organs can be retained in their proper positions. I believe that the reason one hears of so many failures from the use of the curette is because these essentials have been overlooked. The patients were not cured because the operator dilated and curetted the uterus, but left untouched a pyosalpinx or an adherent tube and ovary.

(*b*)—Diagnostic Importance of Curetting. —This is a most important field for the use of the curette and one that is being appreciated more and more by the general practitioner. Here the curette is used not so much as a means of cure as to determine a possible malignant condition. I refer to cases of persistent bleeding in women at or near the menopause, where the hemorrhage has perhaps been only temporarily checked by a first curettage. At the first sign of foul discharge in any woman of whatever age, the cause should be sought for and unless it can be explained otherwise, the uterus should be curetted and the scrapings subjected to careful microscopic examination. Every state now has one or more laboratories in its largest cities or universities where such scrapings can be sent and the opinions of experts secured. It would be well for every curetted patient to understand the importance of such examination and bear the expense for the same. The advantage of subjecting to examination the products of each curetting is proved every month at the University Hospital. Suspicious areas are discovered and the patient kept under supervision. In this way the malignant uterine disease can be taken in its incipiency and many valuable lives saved. A practical point to be observed in making such curettings is that they must be deep enough to enable the pathologist to draw his conclusions. However, the technique employed in ordinary curetting is amply sufficient for the purpose.

(*c*) THE USE OF THE CURETTE IN CASES OF ADVANCED CARCINOMA OF CERVIX, BODY OF UTERUS, OR BOTH.—While the above has been a plea to the practitioner for the early diagnosis of uterine carcinoma, in justice to him it is only fair to say that many cases of this most terrible disease do not apply for medical treatment until it is too late to attempt anything more than palliative measures. Every month I am demonstrating to the students that, while the carcinomatous process has gone too far to hope for a radical operation, much can be done for these suffering women by the judicious employment of the curette, followed by applications of chloride of zinc. With the woman under anesthesia, the softened cancerous areas should be curetted away thoroughly, going as high upward in the cavity of the uterus as may be necessary. Sometimes nearly a pint of this softened tissue can be thus removed until only a shell of the uterus remains. Then the normal vagina mucosa being protected by gauze soaked in a saturated solution of bicarbonate of soda, a gauze soaked in a seventy-five per cent solution of chloride of zinc is packed into the cavity, which has been curetted. A slough or cast of the uterus results from the use of this powerful caustic and a granulating surface is left after the slough comes away. In many cases the foul discharge ceases, the pain is relieved, the appetite returns, the color improves and the woman picks up in flesh and strength. While this may be only temporary and may have to be repeated, the patient will have had months of comparative comfort.

(2)—THE USE OF THE CURETTE IN THE PUERPERAL UTERUS.

In order to consider this portion of our subject intelligently, it will be necessary to consider the use of the curette in the puerperal uterus prior and subsequent to the complete formation of the placenta.

(*a*)—Treatment of Abortion by Means of the Curette.—I know of no more effectual method of treating inevitable abortion than by the curette. I do not advise the preliminary use of the tampon, but advocate placing the patient under anesthesia and under aseptic conditions removing the products of conception by the use of the sharp curette. It matters little whether the external os has been dilated sufficiently or not, a preliminary softening of the cervix by the use of the tampon for this purpose being entirely unnecessary. More can be accomplished in the way of cervical dilatation in five minutes by the proper application of a steel branched dilator than the same number of hours devoted to the vaginal tampon. Then the entire surface of the uterus should be systematically gone over by the sharp curette and every portion of the decidual tissue together with the products of conception removed. This cannot be accomplished successfully with the dull curette. A good indication that the uterus is empty is its contraction and the cessation of the bleeding. Then the uterus should be washed out thoroughly with sterilized water and unless there has been previous sepsis, the case need give us no further concern.

The evil results of curetting for abortion arises from the timid use of the curette by unskilled hands. I would urge the beginner to explore the uterine cavity with the finger in order to make sure that no tissue has been left behind. Also, it is a good plan to first pass the curette to the fundus of the uterus, for after its location, there will be less danger of pushing the instrument through the softened uterine wall.

(*b*)—Use of the Curette after the Formation of the Placenta.—In the great majority of instances after the placenta is completely formed unless the patient be the subject of meddlesome midwifery, the afterbirth will come away intact. The unskilled use of Credé's method of placental expression has a tendency, I believe, to leave portions of the placenta or parts of the membranes behind. In case this is suspected from an examination of the afterbirth, or if symptoms of sepsis arise shortly after labor, the retained secundines should be removed by the curette, but not by the same kind of instrument as is employed for abortion or for the unimpregnated uterus. It should be larger and dull and should be used with the greatest gentleness and for the following reasons: A too vigorous application of even the dull instrument, and surely this will follow the use of the sharp curette, will open the uterine sinuses which have been closed by contraction of the uterus and by blood clots, and the best possible field will be prepared for the absorption of microorganisms. The lining membrane of an emptied full-term uterus differs greatly from that of the uterus which has disposed of the products of conception before the formation of the placenta, and unless treated differently, sepsis will result rather than be averted by our efforts. The same is true when septic symptoms develop later in the puerperium. I believe more harm than good has resulted from curetting after full-term labor, for the reasons stated above. How many times have we seen a chill follow within a short time after the vigorous application of the curette? Does not this mean that fresh avenues have been opened up for the increased absorption of the pathogenic bacteria? It would seem so, and certainly my results have been better since the abandonment of this most improper use of the instrument under discussion.

THE SYMPTOMATOLOGY AND TREATMENT OF TYPHOID FEVER.*

BY W. P. DERCK, M. D., MARYSVILLE, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

IN presenting a paper on this subject I do not expect to advance anything new regarding the etiology, pathology, or symptomatology, or advocate any new line of treatment; but simply to discuss some points that may be of interest, and hope to bring forth some valuable information from the discussion.

Regarding etiology and pathology, I shall not impose upon your time as we are well agreed that the onset of typhoid fever is due to the bacillus typhosus, and that the gross pathologic changes take place in the intestinal tract. I will not say exclusively in that region, for in some instances of an extreme toxic case grave symptoms may arise in organs remote from the center of the pathologic changes, notably in the brain, when we have, as it were, a paralysis of all the nerve centers.

The symptomatology of typhoid fever seems to create more trouble and differences of opinion, lack of diagnosis in due time, until perhaps one of the graver symptoms, as hemorrhage, occurs than any other part of the whole subject. We should not expect to find in every case the classical symptoms that are set forth in our text-books. Great numbers of cases occur that do not have an attack of epistaxis, diarrhea, rose-spots, or gurgling in right illiac fossa. One or more of the symptoms enumerated may be absent. The symptom of most importance in the diagnosis, to my mind, is that of the temperature. I believe that cases that have an elevation of temperature, not amenable to the action of quinin, and lasting over ten days are true cases of typhoid fever and should be looked upon, treated and restricted just the same as though they had begun with the typical nose bleeding, severe headache, gurgling, tympanites, developed rose-spots, et cetera.

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* Read before the NORTHEASTERN DISTRICT MEDICAL SOCIETY.

A very short time ago a case occurred in my practice that I was at a loss to diagnose. The man had an elevation of temperature over which quinin had no control; no chills, no headache, no tenderness or gurgling, no rose-spots, tongue only slightly coated. What could the condition be? I could not call that typhoid until I was called in a hurry one day and found that he had had quite a severe hemorrhage. After this there was no doubt as to the trouble. Rose-spots appeared and every typical symptom that anyone would need for a diagnosis. I have treated in the past three years about twenty-five cases of typhoid, varying from the mildest to the most severe. Epistaxis occurred in twenty per cent of the cases; rose-spots in sixteen cases or sixty-four per cent, and the other classical symptoms appeared in nearly all cases at some stage.

I have repeatedly heard the remark "Those are not sufficient symptoms for a diagnosis of typhoid fever." What are we to do? Await developments? No! I would sooner make a diagnosis on the temperature and previous history of malaise and loss of appetite than wait until the second week for rose-spots or hemorrhage, after which the family can make its own diagnosis. Other symptoms may be just as important and signify just as much to many of you as those I have enumerated do to me. Then, again, you will note the general appearances, the manner in which the patient protrudes the tongue; these are as characteristic to my mind as those of epistaxis and gurgling. Gurgling in the right illiac fossa may be heard in any of the diarrheas. Tenderness may be confounded with a milk attack of appendicitis, illeo-colitis, or a number of affections. Red spots resembling rose-rash often appear on the abdomen and mislead you; but the temperature, although not always of the same course, rarely is mistaken. Diarrhea may be supplanted by the opposed condition, and very frequently the patient does not complain of headache.

On what, then, are we to base the diagnosis? The majority of us have not the means at hand to make a Widal test, or to examine the feces for the bacilli, and have to depend upon other means. The Widal test has not proved that it is infallible. Were we to depend solely upon that we might make a great error, especially when there is great abdominal pain and we are undecided as to whether it is a case of acute appendicitis or of typhoid fever. From the surgeon's point of view, four symptoms would have a special weight, namely: pain, tenderness, muscular rigidity, and fever. If one of these is absent doubt arises. When typhoid fever is suspected, one or more combinations of these symptoms will prevail. For instance, if rigidity is absent, the surgeon must account for its absence before he opens the abdomen. He reasons, in doubtful cases, and proceeds with caution; but he should not proceed until every means of investigation has been exhausted. I would direct especial attention to the previous history, the temperature, the tongue appearance and manner of protruding, and nervous manifestations. You will often get a history of not feeling well in the last couple of weeks with a loss of appetite and a tired feeling on arising in the morning. The tongue will have that dirty yellowish coating and that peculiar trembling movement on protruding. The temperature will register a degree higher in the evening and progressively higher according to the severity of the infection.

Regarding the treatment, much has been written on the various methods during the past twenty-five years. A great many theories have been advanced from the time of quinin and whiskey to the exclusion of water, to the present time when pure water, internal and external, forms the basis of the most rational treatment. To outline any one particular treatment for typhoid fever would be ridiculous, unless all cases were uncomplicated and passed through the same course. Each complication demands its own treatment, and if recognized as it occurs will not interfere with the treatment of the subject in hand.

For general management, the patient should be placed in a well ventilated room with proper surroundings, in charge of a competent nurse, and kept in bed until convalescence is well established. The diet should consist of those foods most easily digested and leave the least residue. Milk seems to be the favorite, but the stools should be carefully watched, and at the first appearance of curds, the milk should be immediately stopped and broths substituted, unless their exists a diarrhea. Various articles, however, can take the place of milk, as barley-water or strained gruel, albumen water, buttermilk. and whey, at the same time plenty of pure cold water. Of the articles enumerated, I have had less tympanites and the case pursue a more favorable course when I did not allow milk in the diet. I am of the opinion that too much food is given in nearly every case, and that the patient would be much better off with less food, especially milk, and more sterilized water. The restricted diet should be continued for at least ten days after the temperature has been normal, and then only a gradual return to the solid foods. Hydrotheraphy is practiced in different ways. Many of us have not the means at hand to apply the full bath, and have to be satisfied with other means, as sponging or wet packs. Personally, I favor sponging, the temperature of the water gradually lowered from lukewarm until ice-water is reached. I have found sponging and fanning, while yet wet, to act very favorably if the temperature be very high. Special directions to bathe the back and spine should not be neglected, as, frequently, the attendant will bathe only the parts in sight, neglecting the back, thus favoring that annoying complication—bedsores. Some may ask, "How often would you have the patient sponged ?" That would depend entirely upon the elevation of temperature. If that ranges 103°, or over, I would advocate sponging every three hours. If the temperature range be 101° I would have the patient sponged at least three times in the twenty-four hours, not interfering with the time of rest, There may be complications in which we should not advice the cold bath, namely, peritonitis, hemorrhage, phlebitis, severe abdominal pains, or extreme weakness. If any of these complications exist to contraindicate the full bath, they need not wholly interdict the sponge bath; this may form a valuable aid.

We now come to the medicinal treatment, another bone of contention. Some claim by well directed treatment to never have a case run over twelve to fourteen days, and a mortality nearly at zero. I have not had the good fortune to have all my cases recover in a fortnight, nor yet to have them all live. I have had some cases last five weeks, and a few get well in fourteen to sixteen days. I have had them, with all the complications imaginable, get well; and others die in spite of all the eliminative and antiseptic treatment that I could bring forth.

I usually begin with a dose of calomel followed by a saline, and see to it that I get three or four large, free evacuations for the beginning. Thereafter, one or two daily movements of the bowels are necessary, thereby lessening the tendency to delirium. These I encourage by a laxative or an enema. If there be much meteorism, a drachm or two of spirits of turpentine added to the enema will favor its expulsion. Of the intestinal antiseptics, salol, guaiacol carbonate, the sulphocarbonates, naphthol, each has its advocates. I am not prepared to say that one has any advantage over the other. Barring the complications, very few drugs are necessary for the treatment of typhoid fever. Each complication demands its own special treatment and should be dealt with accordingly.

In conclusion, I would advise a careful, early diagnosis. It is better to err on the side of malaria, or a remitting or intermitting fever, than on the side of typhoid. Begin treatment by thoroughly cleaning out the intestinal tract. Have daily evacuations thereafter, and elect systematic and thorough hydrotherapy, the administeration of some of the intestinal antiseptics, and the proper regulation of the diet.

WIDAL TEST AND TREATMENT OF TYPHOID FEVER.*

BY H. E. RANDALL, M. D., LAPEER, MICHIGAN.

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I CAN find no better illustration of the importance of more thorough study of typhoid fever than in the report of the board of medical officers appointed by the War Department to investigate the cause of the prevalence of typhoid fever in the various military camps within the limits of the United States during the Spanish-American war. Think of assembling two hundred fifty thousand men under canvas and of having over twenty thousand cases of typhoid fever during five months, it being the cause of death of one thousand five hundred eighty of the flower of our young American manhood. All these had passed a severe physical examination and all were supposed to be healthy, yet typhoid caused eighty-six and twenty-four hundredths per cent of the total deaths. "Young men physically sound, between twenty and thirty-five years of age, with proper sanitary conditions, should not have a mortality of over two per cent per annum. The mortality of the Spanish-American war was twenty-eight per thousand. This means that some one was responsible for the lives lost. At present (October 7, 1901) six thousand pension claims have been allowed for the war. Forty-four thousand cases are still pending. One in seven so far has been allowed. If these receive one hundred dollars per annum (the average for June, 1900, was one hundred sixty-nine dollars and ten cents), and the ratio maintains, the annual pension for this war will be one million two hundred thousand dollars a year or three per cent interest on forty million dollars." The testimony before the Commission shows that in Camps Alger, Chickamauga, Thomas, and Falls Church, Virginia, the loss of life was forty times the corresponding loss in the city of Cincinnati and one hundred times that of the city of New York. Sanitary recommendations were scorned and ignored. This alarming mortality should teach line officers that sanitary rules must be obeyed. I am glad to state that a bill is now pending in Congress, known as the Hay Bill, to make guilty parties responsible in similar cases hereafter. The medical man must control in sanitary matters.

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*Read before the NORTHEASTERN DISTRICT MEDICAL SOCIETY.

WIDAL TEST.—There is a great deal of literature on the Widal agglutination test. The principle is the clumping or the forming of close colonies of the typhoid bacilli when the serum or blood of a patient suffering with typhoid fever is added to a growth of germs in the proper proportions. One part of blood or serum is added to ten parts of a twenty-four-hour bouillon growth of typhoid bacilli and examined at once under the microscope. If movements of bacilli are unaffected the test is negative. When the reaction occurs the bacilli lose their motility and become clumped together. If a reaction occurs with a dilution of one-tenth the inference is that the patient has typhoid or has had it within one year. The dilution is increased and if a reaction occurs with one drop of blood or serum to twenty of bouillon growth the diagnosis is considered certain.

"TOBIESON carries out the Widal reaction in watch glasses, observing both by the naked eye and with the microscope. In three hundred fifty cases of typhoid fever he secured three hundred twenty-nine positive reactions with a dilution of one to fifty; and seventeen with a dilution of one to sixteen or one to twenty-five. Two cases reacted with one to five dilution and two not at all. One hundred fifty-one cases not typhoid gave four positive reactions at one to twenty-five and twenty-five reactions at one to ten. One hundred twenty-two were always negative. The reaction was positive in typhoid during the first week in one hundred thirty-eight of two hundred ninety cases. TOBIESON examined twenty patients who had typhoid fever from one to twenty-three years previously. All gave the reaction from one to ten, but only one gave it as high as one to twenty-five when as much as one year had passed since the attack. Several gave it one to twenty-five after a year and one at one to fifty. Nine of these patients had been examined during the attack and had reacted then at from one to two hundred and one to seven hundred. Evidently the agglutinating power rapidly decreased after the attack. TOBIESON considers the reaction a very important aid in diagnosis, though not always distinctive. A result is always valueless with a dilution of less than one to fifty."—*American Medicine.*

Some of the most important articles of the year deal with the test in regard to surgical diagnosis. The article of DOCTORS JOHN B. DEAVER and E. K. MOORE, in the *Philadelphia Medical Journal* of November 23, on "Some Experience with Blood Examinations," has these words: "Undoubtedly a positive Widal reaction can be obtained after seven to ten days of the disease in a very large percentage of cases of typhoid fever, but as a diagnostic aid to the surgeon its results are upon the whole disappointing. Sometimes in the first days of an enteric fever the clinical picture very closely resembles acute appendicitis. At this stage the Widal reaction has not been established and in practically all cases the clinical symptoms have become positive before the Widal reaction has become positive. Sometimes the Widal test is negative until three or four weeks or is intermittent. Two cases of acute miliary tuberculosis and one of tubercular peritonitis gave a positive Widal reaction." They conclude that the Widal reaction is rarely of much value to the surgeon, however valuable it may be to the medical man. If, after two or three weeks the reaction is negative, it is safe to conclude that the case is not one of typhoid fever.

Treatment.—Two important factors in the treatment of typhoid must be constantly borne in mind. First, the patient is passing through a prolonged sickness with the attendant exhaustion from the recumbent position, the diarrhea, the continued fever; and second, suffering from the absorption of poison or the toxemia. To combat the exhaustion we must feed our patient. It has been well put that one would starve to death in a drug store. In typhoid fever we have to deal with a patient whose power of digestion is diminished and yet we must give him nourishment to combat the disease. Milk has been the main diet in typhoid fever since the Civil war until the last two or three years. If milk can be taken without fermenting or decomposing or irritating the mucous membrane of the bowels, or curds being passed in the stool, milk is the ideal food. It is argued that milk forms a dense curd in the stomach and thus really is a solid food. The question, it seems to me, is whether the patient is getting the good of the milk and this can only be determined by examining the bowels and stools. It is very seldom that milk is given alone. Limewater, barley water and rice water are added to prevent the dense curdling in the stomach. We do, however, meet with patients with whom milk does not agree. Whey, soups, fresh eggs, chicken broth, et cetera, are given in these cases. There seems to be a general disposition in the profession to give a more liberal diet. DOCTOR F. C. SHATTUCK, in the *Journal of the American Medical Association*, July 11, 1897, has given this diet with a mortality of eight and seven-tenths per cent against a former mortality of ten per cent under an absolute milk diet. Milk, hot or cold, with or without salt, diluted with limewater, soda water, peptogenic and peptonized milk; cream and water; milk with white of egg; buttermilk; milk whey; milk with tea; coffee; cocoa. Soups: Oyster, veal, chicken, tomato, potato, mutton, pea, bean, et cetera, all carefully strained and thickened with powdered rice, arrowroot, flour, milk or cream; Horlich's malted milk; Mellin food; malted food; malted milk; bovinine, and somatose; beef juice; gruels; strained corn meal, crackers; barley water; toast water; albumen and water with lemon juice; ice cream; eggs, soft boiled or raw; eggnog; finely minced lean beef; scraped meat; soft parts of raw oysters; soft crackers with milk or broth; soft puddings without raisins; soft toast without crust; wine jelly; apple sauce and macaroni.

SEMINAL VESICULITIS.*

BY THEODORE H. SMITH, M. D., MOUNT CLEMENS, MICHIGAN.

(PUBLISHED IN The Physician and Surgeon EXCLUSIVELY)

IT is only within the last few years that disease of the seminal vesicles has received any attention at the hands of the profession. The most important cause of seminal vesiculitis is due to gonorrheal infection. The idea I had in giving this paper was to impress on the mind of the general practitioner that a great many cases of chronic urethritis could be cured clinically if the vesicles received proper attention, the treatment of the latter being combined with that directed to other genito-urinary pathological conditions.

In treating this disease, we not only have to deal with infection, but also those various psychic and organic disturbances of the sexual and urinary functions. Among other causes may be mentioned urethritis, prostatic diseases, and masturbation—the symptoms varying according to the acuteness of the case. In many instances the function of micturition is involved, but more often it is the sexual functions that are impaired, such as frequent emissions, abnormal excitement, premature ejaculation, painful orgasm, and in some instances hemorrhagic emissions. Generally in acute cases, we find that there is involvement of the prostate, while in chronic cases we find, as a rule less involvement of the prostate. Sometimes we find no trouble with the prostate, all the trouble being centered in the vesicles. In the acute stage, the patient will often complain of a throbbing, or a sensation of weight in the region of the perineum, particularly if there is much involvement of the prostate. If constipation exists, there is tenderness and sometimes pain during defecation.

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*Read before the NORTHEASTERN DISTRICT MEDICAL SOCIETY.

The diagnosis is established entirely by digital examination of the rectum. Generally we find the vesicles enlarged and tender; in the acute stage, it is almost impossible to touch them without causing the most excruciating pain.

In commencing treatment, sexual rest should be insisted upon. The ideal treatment for this disease is massage of the vesicles and correction of the other pathologic conditions that may be present. I might say that massage is the keystone of the treatment, combined with the use of irrigation, of astringents such as silver nitrate, permanganate of potash, protargol, et cetera. When irrigations are used it is best to use large quantities of the fluid well diluted; in this way some of the fluid is without doubt forced into the mouth of the prostatic and ejaculatory ducts. The passage of the sounds is also useful. Associated infectious conditions of the bladder and urethra, and particularly of the prostatic urethra, should be treated at the same time, or else all treatment directed to the vesicles alone will fail. Diet should be nonstimulating and also the avoidance of tobacco and liquors. The bowels should be kept open. In acute cases, wherein it is not possible to massage, copious rectal injections of hot water should be used without much pressure. An ordinary fountain syringe can be used with return-flow tube.

Now a word with regard to the technic of massage. The great trouble has been that either too much or too little pressure has been used. The method usually employed is to have the patient bend over with his hands on a chair; the index finger which has previously been covered with a finger cot, well lubricated with vaselin, is introduced as far as possible up into the rectum. If the vesicles are not too sensitive, begin at the top of each vesicle and work downward, using side to side motion. It is essential to have bladder well filled, first, to make the glands more prominent to the touch; secondly, to see how much debris comes away when the patient urinates. Massage should be used every third or fourth day I might say that this treatment in many cases is a cure for impotency. No physician has a right to treat a case of chronic urethritis without a thorough examination of the rectum. It is surprising what good results can be obtained by this method of treatment.

Now a word as to tuberculosis and cancer of the seminal vesicles. Tuberculosis does not, as a rule, occur as a primary affection. In many cases of tuberculosis of the seminal vesicles the primary cause undoubtedly is due to gonorrheal infection. It would be much the best plan in these cases to try massage first; of course we do not look for a complete cure, but the patient can be made comfortable at least. Excision of the vesicles is a most important matter to the patient. If the disease is limited only to the vesicles it is right they should be removed, but that will depend on each individual case. Every case is a law unto itself.

TRANSACTIONS.

NORTHEASTERN DISTRICT MEDICAL SOCIETY.

STATED MEETING, JULY 31, 1902, AT MOUNT CLEMENS.

THE PRESIDENT, GEORGE S. NEY, M. D., IN THE CHAIR.
REPORTED BY A. HENRI COTÉ, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR W. P. DERCK, of Marysville, read a paper on "Typhoid Fever." (See page 440).

DOCTOR DEGURSE (Marine City): It is a mistake to use milk in the treatment of typhoid fever. It should not be given whether predigested or with limewater. If the curds, which you are sure to find from time to time with patients on a milk diet, pass from the ulcerated conditions present, either perforation, hemorrhage, or a prolonged recovery of two or three days will result. I have found ice water to be contraindicated. For the first six days of the disease I do not give anything but cold water, and after that period I use the peptonoids. Last winter, during a typhoid fever epidemic in Marine City, I had occasion to test the merits of milk as a diet, which I did on seven of fourteen typhoid fever patients. The seven patients who were given milk, and given it throughout the course of the disease, developed very high temperature and delirium; the temperature ranging from 103° to 105°. Baths or other measures did not seem to reduce the temperature, and a normal recovery was not had until the twenty-fifth to the twenty-seventh day. To the seven other patients, I gave nothing but cold water and peptonoids until the temperature had dropped to normal, when they were allowed one-third of a cup of milk with limewater for the next two days, and until the stomach had begun to act in its secretions once more. These patients had but little temperature (never above 103°), and no delirium. Recovery was had in sixteen to seventeen days. The less sulphocarbonates given to patients the better as this medication invariably deranges their stomach. There is no question but that salol is a good remedy; however, there are many typhoid fever patients who can be medicated to death. It is my conviction that just as many recoveries are made from normal salts with cold water as from the former medicine. The time has arrived when, I think, every physician, especially the local practician, will abandon the use of milk in the treatment of typhoid fever. The management of this disease today is only in its infancy. Up to ten years ago it was almost a crime to administer cold water; today it is freely employed, and I think that when the next paper is read before this society the diet will be that of water or liquid peptonoids.

DOCTOR YATES, SR.: Two or three years since, I was led to change my tactics with regard to feeding typhoid patients. I had my eyes opened by reading a paper written by NICHOLS, and I never dared to give milk very early in typhoid fever cases since. In every case of typhoid, there is a vast amount of germ production. If we feed milk we produce whey as a result—the best soil in which germs can propagate themselves, and hence we are feeding the disease instead of feeding the patient. My line of practice, since that time, has been almost entirely changed in regard to feeding, and I do very little with milk. My medical treatment has been to disinfect the body of the patient, and for that purpose I have given different remedies, the most common one being salol. I find the temperature lowers more rapidly under that. Sponging has been common in my practice. Another great addition to the "cooling off" treatment has been the injection of large quantities of cold water into the bowels, two or three times a day. It cleans the bowels: some disinfectant may be added, if one prefers. As a food, all that I have given my most severe cases has been eggs and water. I had an opportunity to try this treatment upon a man, practically a tramp, whose condition was such that there was little hope for his recovery. His temperature was elevated and he became unconscious for quite a time; but when the means spoken of were employed the temperature lowered and was kept down so that after the first rush it never returned to 103°. This man was given from six to eight eggs with water every day. He digested them well, the stomach bore them well, and the passages soon put on a more natural appearance.

DOCTOR THOMPSON: I thoroughly agree with DOCTOR YATES and DOCTOR DEGURSE. I do not believe there can be any more injurious food put into a patient suffering from typhoid, than milk, because the casein is not digested. Regarding the duration of typhoid fever, I do not see why it should last any longer than any other so-called microbe disease. I have seen cases of typhoid fever restored to normal temperature on the tenth day. I believe that in the majority of cases of typhoid properly treated laceration would not occur. It is a complication. By employing antiseptics for the purpose of destroying the germs, one can materially shorten the duration of the disease. It is a wonder that, years ago when typhoid was treated with opium and bismith, so many who were taken down with that disease survived.

DOCTOR ROBBINS: I do not believe that typhoid fever is an intestinal disease. It is sometimes impossible, at a certain stage of disease, to differentiate between meningitis and typhoid fever. I recall a case the diagnosis of which was that of meningitis, but at its autopsy it was found to be a case of typhoid fever.

DOCTOR HEAVENRICH: From the observation of seventy or eighty cases of typhoid fever that I have had opportunity to treat and watch closely in the hospital, I have not been able to see any difference resulting from a diet including or excluding milk. As far as the milk curds are concernd, they did not seem to affect the bowels, and I do not see what harm they can do. By the time the milk gets through the stomach there is nothing left for germs to grow in.

DOCTOR THEODORE H. SMITH, of Mount Clemens, read a paper entitled "Seminal Vesiculitis." (See page 447).

DOCTOR ROBBINS: As seminal vesiculitis is an infrequent disease, I was curious to get some statistics as to its frequency in my practice, and in referring to my case-book, I found that in two hundred cases of genito-urinary diseases there were only six cases of seminal vesiculitis. It is not surprising, therefore, that the general practitioner sees but few cases of this disease. Of the six cases mentioned, two were in connection with acute prostatitis, two acute gonorrhea, and two chronic gonorrhea. Two were tubercular and two chronic. The chronic cases are not usually discovered. The acute cases in connection with acute gonorrhea are found present with a large throbbing prostate, fever, and with that sense of pressure and bearing down pain. The symptoms are similar to those found in acute prostatitis alone. As to diagnosis, I agree with **Doctor Smith**, that it must depend on examination alone, though he should go further and include the examination of the seminal fluid by the use of the microscope. As to how the digital examination should be made there are two or three positions which are important. First, with the patient lying on his back; second, with the patient lying over a table or chair; and third, with the patient stooping as though playing leap-frog. There are some vesicles, however, which cannot be reached, whether abnormal or normal, and, if reached at all, cannot be reached their entire length. One can only reach about the lower inch of the seminal vesicle. When the seminal vesicle is not diseased, it is flaccid and one cannot feel it. On the other hand, when it is diseased it is thickened by inflammation, and then it can be felt just back of the prostate or little neck of the seminal duct and the lower portion, with considerable readiness. In cases wherein the seminal vesicle is diseased from acute seminal vesiculitis, or from gonorrheal infection, it will feel almost like an abscess with inflammation around in this region that is somewhat abnormal. However, in cases of chronic vesiculitis, and these are very important, you may even determine whether seminal vesiculitis exists by massaging the seminal vesicle. In the examination of the seminal fluid, if spermatozoids are found, it means that you have reached the seminal vesicle. The spermatozoids in a healthy vesicle are alive, but in a diseased vesicle, they are always dead. If spermatozoids are found that have no motion, even though you feel nothing, the case may be diagnosed as one of seminal vesiculitis. The points of diagnosis, then, rest upon what is felt at the terminal end of the examining finger, and what is observed through the microscope. Prognosis must always be guarded, because we can never explore the seminal vesicle with any degree of certainty. The mode of treatment depends upon whether the disease is acute; or whether there is chronic gonorrheal infection. Very little should be done locally. Hot baths are of great importance, so are hot injections, rest in bed, and opium to resist and relieve pain. Seminal vesiculitis will usually disappear under this form of treatment. After the acute stage is over, a thorough massage treatment is very helpful.

Doctor Coté: My experience with seminal vesiculitis is somewhat limited, though my ratio of this disease to the other genito-urinary diseases is larger than that of **Doctor Robbins**.

The treatment suggested by DOCTOR SMITH is the accepted treatment of today. It is essential that very hot irrigation be used when the vesicles are massaged, which should not be any oftener than twice a week. The dilator can be used to advantage. As most cases of chronic seminal vesiculitis are accompanied by prostatitis, the use of the dilator, while beneficial to the seminal vesicle, also acts as a massage agent for the prostate. The accumulation of secretion, which is sometimes found in the seminal vesicle, can be expelled by the finger, and even with a sound or dilator.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF MICHIGAN.
AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

Bacteriology and the Serum Treatment of Scarlatina.—The following account of Doctor Moser's work with antistreptococcus serum and the bacteriology of scarlet fever is taken from the *British Medical Journal*, Number MMCLXXIX, page 1086. This article is the only reference to his work that I have been able to find, and although it is referred to by Doctor Charlton in his paper on the subject of "Antistreptococcus Serum in Severe Cases of Scarlet Fever," it is so brief and concise that I take the liberty of incorporating it in this department in toto.

[*Moser's Work.*] "At the Congress of Naturalists and Physicians recently held at Carlsbad, it was announced that Doctor Paul Moser, assistant physician to Saint Anne's Hospital for Children in Vienna, had discovered a curative serum for scarlet fever. The serum is obtained by injecting horses with the products of cultures of streptococci which Doctor Moser has found in the blood of sixty-three out of ninety-nine children who had died from the disease. It has been produced in quantity in the Serotherapeutic Institute of the Rudolph Hospital in Vienna. It has been used clinically since November, 1900, in about eighty-four cases with the result that the mortality among four hundred cases of the disease in the Saint Anne's Hospital has been reduced one-half. Only the more severe of the cases in the hospital were treated with the serum on account of the difficulty in obtaining a sufficient supply. All children who were treated within three days of infection recovered. Their general condition underwent a striking and rapid improvement and the pyrexia in many cases quickly abated.

"So far the serum has not been produced in a concentrated form so that a comparatively large quantity has been injected into each patient. In some cases erythematous eruptions developed, but they soon disappeared. Professor Paltauf and Professor Escherich, Director of the Saint Anne's Children's Hospital, testify to the good results obtained with it, both in the case of children and adults, and orders have been given by the Austrian Minister of the Interior for the serum to be prepared in large quantities for distribution to all the Vienna hospitals, and the congress was informed that the government would vote a considerable sum for the purpose. An antistreptococcus serum has previously been employed in severe cases of scarlet fever, notably by Professor Bojinsky, of Berlin, but without any really satisfactory results. We have not as yet had an opportunity of seeing the full text of Doctor Moser's paper, which will be worthy of careful study."

[*Charlton's Work.*] Doctor George A. Charlton, Fellow in Pathology, McGill Medical School (*Montreal Medical Journal*, Volume XXXI, Number X), gives a preliminary report of investigations he has been carrying on during the past two years upon scarlet fever patients admitted to the Montreal Hospital for Infectious Diseases. His observations, although they follow closely upon those reported by Moser, were made entirely independently. The first knowledge he had of Moser's work was obtained from the above extract.

The author has studied one hundred seventeen cases of scarlet fever bacteriologically. He took cultures from the tonsils and pharynx. Streptococci were found in sixty-five of these or in fifty-five and five-tenths per cent. From twenty-five of the severe cases cultures were taken from the blood, during life, relatively large quantities of broth being used for the purpose. Streptococci were invariably present when the blood had been obtained during the first five days of the disease. He also had no difficulty in demonstrating culturally similar streptococci in the pus from suppurating cervical glands and in the discharge from the ear when otitis was a complication.

Courtois found streptococci in the urine in ninety-one per cent of the cases of scarlet fever suffering from albuminuria. Many other workers have reported the finding of streptococci in the throats of scarlet fever patients.

The author has used a number of antistreptococci sera, but gives preference to that manufactured by Stearns & Company, of Detroit. The particular method of preparation is not given. He reports fifteen cases, all severe, and all of which he has no hesitation in saying that, under ordinary treatment, if they had not terminated fatally they would at least have suffered from lingering and troublesome complications. In this series of fifteen cases there were thirteen prompt recoveries, none of which suffered from albuminuria, and desqumation progressed more rapidly than ordinarily. The remaining two died: one entered the hospital in a dying condition and lived only four hours; the other on admission had a severe pneumonia and succumbed five days later to an attack of laryngeal diphtheria.

Twenty cubic centimeters of the serum were used to the dose. The effect was prompt. The temperature began to fall within two hours after injection and became normal in from two to four days. No other treatment was employed. No local or general symptoms followed the use of the serum.

The author maintains that the serum does not cure scarlet fever. Organisms other than the streptococcus seem to play a part in the infectious process. Streptococci were not found in the blood of mild cases of scarlet fever. The timely administration of antistreptococcic serum in severe cases of scarlet fever, however, tends to allay unfavorable symptoms, overcomes complications, and if given at an early stage of the disease prevents fatal termination. (See Editorial Comment.) D. M. C.

The Treatment of Pulmonary Tuberculosis in New Mexico.—The following are selected statements from the article by Appel (*Journal of the American Medical Association*, November 29, 1902), entitled "The Army Hospital and Sanitarium for the Treatment of Pulmonary Tuberculosis at Fort Bayard, New Mexico."

This sanitarium is located in the dry, mountainous region of southern New Mexico, at an altitude of 6,040 feet.

Cough, except in advanced and laryngeal cases, soon becomes less distressing. In far advanced cases, with no laryngeal disease or emphysema, the cough rarely continues distressing, and the cavities are usually found dry postmortem.

Hemoptysis occurs much less frequently than at lower altitudes, Nearly fifty per cent of our cases have a previous history of hemorrhage, and in many it has occurred very recently before admission. In very few has there been recurrence, and when recurring is readily controlled, excepting in those with large excavations. This tends to confirm the opinion that the most important element in the causation of hemoptysis in the milder cases is increased arterial tension or vascular congestion, rather than erosion of the vascular walls, and its lessened frequency in higher altitudes is probably due to lowered arterial tension resulting from diminished barometric pressure. Doubtless the prohibition of violent exercise is also a potent factor in its prevention.

The heart has been carefully weighed in all postmortem examinations to determine whether this organ is congenitally small, as alleged, in those susceptible to pulmonary tuberculosis. Seventy-three autopsies give the following records:

Average weight of heart . . .	292.2	grams.
Smallest heart	150	"
Largest heart	460	"
Number above average . . .	41	"
Number below average . . .	32	"

Bloomberg and Curry have made fifty-eight examinations of the blood in thirty-eight patients. Their records show marked irregular variations, not only in the number of red cells and leucocytes but in the differential count.

In the first and second stage cases, while the average red cell count is practically normal, the leucocytes vary from five thousand eight hundred to twenty-six thousand, and the degree of leucocytosis, with few exceptions, corresponds with the extent of pulmonary involvement. The average normal blood count at Fort Bayard is six million to six million five hundred thousand red cells and eight thousand to ten thousand leucocytes.

The records of the sanitarium show only twenty-two cases in which the temperature was highest in the morning for several successive days. Of these, two were discharged unimproved, four remained with no prospect of recovery, and sixteen died. (Of the four that remained three have since died). J. R. A.

Vaccination and Serum Therapy Against the Bacillus of Dysentery.—Gay, Fellow in the Rockefeller Institute for Medical Research, under the direction of Doctor Flexner, makes a contribution to the study of vaccination and serum therapy against the bacillus of dysentery (*University of Pennsylvania Medical Bulletin*, Volume XV, Number IX, page 307).

"The importance of a pathogenic organism so widespread and with such varied capabilities as is exhibited by the bacillus of dysentery cannot well be overestimated, and now that the destructive enterocolitis of summer origin in children can be ascribed to a similar if modified form of infection, the procuring of a curative serum will constitute nothing less than a great boon to humanity."

The author describes the methods of determining the minimallethal dose, the methods of preparing vaccines from cultures of the bacillus dysenteriæ. Also the methods of preparing the antidysenteric serum. After a somewhat extended series of experiments he concludes:

(1) The bacillus of dysentery (Shiga) is the cause of acute and other forms of dysentery in tropical and temperate climates, and, probably, of a part of the summer diarrheas prevailing in warm countries among infants.

(2) Guinea-pigs are susceptible to experimental infection with bacillus dysenteriæ and react to inoculation in a characteristic manner.

(3) The bacillus of dysentery, cultivated outside of the body, quickly suffers a reduction in virulence for guinea-pigs; but the virulence can readily be increased by successive passages through the bodies of these animals.

(4) The passage of bacillus dysenteriæ through guinea-pigs permits of the establishment of a uniform grade or degree of virulence in the organism, irrespective of its source, which adapts it for the production of vaccines of quite uniform activity.

(5) The vaccines consist of suspensions of dysentery bacilli killed by the addition of tricresol, the activity of which undergo an increase, for a time at least, that is coincident with disintegrative changes taking place in the microorganisms.

(6) This vaccine suffices to protect guinea-pigs from a succeeding multiple fatal dose of living dysentery bacilli, and to produce in the horse an active immune serum.

(7) The immune serum of the horse exhibits marked protective properties in preventing fatal infection with bacillus dysenteriæ or intoxication with its vaccine in guinea-pigs.

(8) The bacillus dysenteriæ resists bacteriolysis by blood serum to a greater extent than some other members of the colon-typhoid group of bacilli.

(9) A useful serum therapy of bacillary dysentery and of certain forms of the summer diarrheas of infants is rendered highly promising. D. M. C.

Thrombi Composed of Agglutinated Red Blood Corpuscles.—Flexner (*University of Pennsylvania Medical Bulletin*, Volume XV, Number IX, page 324) gives a preliminary report on investigations he has made concerning the production of thrombi by the agglutination of red blood corpuscles. The study of the phenomena of agglutination has extended far beyond bacteria. Long ago Wier Mitchel pointed out that agglutination was one of the characteristic effects of the action of snake venom upon the corpuscular elements of the blood. More recent studies upon agglutination and lysis of bacteria and other cells have shown that these effects are produced by two different kinds of substances, and very recently Flexner and Noguchi have been able to prove that the agglutinating principle for blood corpuscles in snake venom is distinct from the dissolving substance.

Within the past twelve months the study of hemolysis has brought to light the interesting fact that products of some bacterial cultures are hemolytic. Hemolysis is usually absent at freezing temperature, while agglutination is not prevented by such low temperature.

The author's attention was first called to this apparently hitherto unnoted phenomena by the detection of a peculiar thrombus in the dilated veins in the intestinal submucosa in the immediate neighborhood of an ulcerated typhoid patch in the ileum. Leucocytes took no part in the process. Fibrin was present in very small amount, but the vessel was occluded by a conglutinated mass which on careful study was seen to be made up of red blood corpuscles altered in form, adhesiveness and staining properties. Similar thrombi have been seen in pneumonia, diphtheria, and other acute infectious diseases.

The author further considers the possibility of the occurrence of similar thrombi in diseases of other than bacterial origin, and cites a case of eclampsia in which hepatic lesions were abundant and in which capillary red corpuscular thrombi were obtained. Agglutinative thrombi resembling those occuring in natural diseases may be produced experimentally in animals.

The author's conclusions are as follows:

(1) Agglutination of red corpuscles intravitam is not uncommon in infectious diseases in man and animals.

(2) A special variety of thrombi is produced through this agglutination, which may be denominated agglutinative thrombi.

(3) When such thrombi are old, or when the agglutination is compact they may present appearances to which the name "hyaline thrombi" has been applied.

(4) Other alterations of the blood than those arising in infectious diseases may bring about agglutinative thrombosis, the nature of this alteration being little understood.

(5) Poisons which destroy corpuscles rapidly are provocative of agglutinative thrombosis.

(6) The so-called "fibrin ferment thrombi" are probably nothing else than agglutinative thrombi. D. M. C.

SURGERY.

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The Radical Cure of Cancer of the Stomach.—William J. Mayo, A. M., M.D., in a paper read by invitation before the New York Medical Association, October 22, 1902 (*Saint Paul Medical Journal*, December, 1902), says he does not believe that facts bear out the statement that "Cancer of the stomach is a hopeless disease whether operated upon or not."

In looking up records of results of removal of cancer from the stomach McDonald finds forty-three undoubted recoveries. Murphy's collection of one hundred eighty-nine cases by different operators shows that twenty-six died, seventeen surviving three years—about eight per cent (while operations for cancer of the cervix uteri are better), and as one third of all carcinomas are of the stomach, it is evident that these operations have not received the respect that they should.

Kroenlein's statistics show, that patients not operated upon die on the average within a year, while a gastroenterostomy prolongs life three months and a radical operation adds fourteen months to life over those not operated upon.

Mikulicz, in one hundred cases, reports an average extention of life one and one-third years, and says that following operation there is comfort nearly until death in contradistinction to the misery of those not operated upon. The reason that the results are not better is because the operation is done too late. Secondary infection is much less frequent than in cancer of the breast, uterus or rectum. It is the general opinion that the presence of a tumor makes the diagnosis and precludes an operation. We should not wait for a diagnosis by the presence of a tumor, neither to rely too implicitly on laboratory findings, but as the author says: "Given, a previously healthy person of middle age or beyond, who is beginning to loose weight and strength, with loss of appetite and slow and more or less painful digestion, we should suspect cancer. If, after thorough examination by all the methods at our command, adequate reason for the condition is not forthcoming in a few weeks at most we should advise exploration. Should this become the practice, cancer of the stomach would give as favorable a showing as cancer of the breast or uterus. If the profession awakes to its responsibility, the general public will be quickly educated to its importance. I would emphasize the necessity of obtaining a careful history. A very large proportion of the cases which we have had gave an early history of ulcer of the stomach." His associate, Doctor Graham, found it in over one-half the cases observed, while just the opposite view is taken by competent observers, who say that a previous ulcer argues return of ulceration as against malignancy.

Doctor Mayo gives, as an experience of ten years' work, the result in two hundred thirteen operations upon the stomach by himself and brother, Doctor C. H. Mayo, in Saint Mary's Hospital, Rochester, Minnesota. In their experience, cancer of the pylorus was the only form of the disease in which an early diagnosis could be made. A distinct ring with slight lateral involvement, interference with emptying of the stomach, findings of the evening meal by morning washings, or by the test breakfast method, and distention of the stomach with air through a tube by a Davidson's syringe were the methods used to make the diagnosis. This simple means is at the command of every practitioner, and although he may not be able to arrive at an accurate diagnosis, his suspicions should lead him to suggest an abdominal exploration in order to give a patient the best possible opportunity for relief. The character of the operative procedure will be governed by conditions found, whether secondary involvement and extensive adhesions are such as to preclude a radical pylorectomy, or simply do a gastroenterostomy with a view of life prolongation and future comfort.

Lymphatic involvement, when confined along the lesser and greater curvature of the stomach, head of the pancreas, and omentum admits of removal. The section through the stomach should be made as far to the left as the gastric artery. Doctor Mayo finds in an experience of twenty pylorectomies that the following method has proved the most simple and satisfactory.

"Through a median incision, having its inferior angle at or slightly to the left of the umbilicus, the stomach is exposed, and the gastrohepatic omentum tied as far to the left as the gastric artery. This mobilizes the diseased part and by passing the fingers behind the pylorus in the lesser cavity of the peritoneum the gastrocolic omentum can be tied off without danger to the superior mesenteric artery. A gauze pad is drawn under the freed part and a heavy clamp placed on the duodenum with sufficient force to form a groove. A catgut ligature is tightly tied in this groove and a clamp placed on the stomach side and the duodenum divided just beyond the ligature. A silk purse-string suture about the duodenum, three-fourths inch below, enables the tied end to be invaginated in a similar manner to the stump of the appendix. The stomach is turned up and to the left and heavy clamps placed an inch from the growth, in the sulcus formed by the pressure, a continuous catgut shoemaker's stitch is placed, using one thread with a needle at each end. The diseased part is then severed and a continuous silk Cushing suture rolls in the first suture line. Independent gastroenterostomy with the Murphy button is then performed either upon the anterior or posterior wall of the stomach as preferred.

The operation is quickly done, without loss of blood or opening the stomach."

Doctor Mayo reports that of the two hundred fifteen operations upon the stomach, one hundred twenty-six were for non-malignancy with a death record of less than five per cent; ninety-two were for malignancy with nine deaths - ten per cent. Of the latter group one-quarter were exploratory without a death. Of the twenty pylorectomies three, or sixteen per cent, died. One of them with partial gastrectomy lived three years and five months, dying from secondary involvement of the liver. (The writer of this abstract did a pylorectomy with a considerable partial gastrectomy for malignant growth December 10, 1898, and the patient is still living and enjoying the best of health.)

Doctor Mayo says: "In conclusion, let us put this question to the practitioner of medicine. Can you cure a case of cancer of the stomach? If not why withold the only means of effecting such a cure—a surgical operation? Again let us ask, can you diagnosticate cancer of the stomach early enough for surgical relief? If not, why withhold an exploration, the only certain means of diagnosis?" H. O. W.

Operative Treatment of Diseases of the Pancreas.—Benjamin Tilton, M. D. (*Annals of Surgery* July, 1902), divides the surgical treatment into classes according to the diseased conditions: first, operations performed on the gland itself; second, operations on cysts and outgrowths; third, operations on adjoining parts for the relief of secondary conditions following disease of the organ. Conditions demanding operation are cysts, tumors, inflammation and abscess, and concretion in the duct in the order named, outgrowths or fluid exudate and hemorrhage less rarely requiring operation. Secondary conditions demanding operation are opening the gall-bladder or uniting it to the stomach or intestine for drainage because of closure of the common duct. Pressure on the common duct may necessitate gastroenterostomy.

In 1898 Koerte reported one hundred twenty-one cases operated. Since then our knowledge of the pathology and anatomy of the organ and adjacent parts has increased, hence we are able to operate with more intelligence. The majority of cysts grow forward between the stomach and colon, or may be found between the liver and the stomach. Other symptoms than enlargement are inconstant. Aspiration through the abdominal wall is condemned. The cyst is best reached by a median incision above the umbilicus. When exposed a needle puncture will complete the diagnosis and lessen the size of the cyst. The cyst may be opened at once or sutured to the abdominal wall and opened at a subsequent operation with the thermocautery. Discharges irritate the skin, hence it should be protected. The operation is usually followed by recovery.

Extirpation of the cyst, while an ideal operation, is dangerous, those at the tail being removed with greatest safety. Fistula, though a long time healing, is never permanent.

Inflammatory conditions which were formerly considered hopeless, may be saved provided an early diagnosis can be made. This, however, is difficult. Acute inflammation, provided it does not kill, may become subacute and more easily managed. The onset may be so severe that death ensues with shock or collapse. Early exploration is advised in these cases. By this procedure active hemorrhage may be checked, the acute form changed to a suppurative process for which drainage is provided when the gauze packing is introduced to stop hemorrhage. When suppuration takes place without exploration the pus may burrow to the suprasplenic space or downward and become subphrenic. It may perforate the stomach or the intestine and in some instances may rupture into the abdominal or pleural cavity. Necrosis of the pancreas may cause death by septicemia. Early evacuation may save the patient. Pressure on other organs is associated with disease of the head of the pancreas. Chronic inflammation of this part may be mistaken for carcinoma. All cases in doubt should be treated as chronic inflammation. When the common duct is closed open the gall-bladder or unite it to the stomach or intestine for drainage.

Tumors if early diagnosed, and involve only the tail of the organ, may admit of operation. Very little can be expected from palliative measures. Surgeons are advised to report their cases in order that the symptomatology and pathology may become more firmly established and better operative results be obtained.

C. G. D.

GYNECOLOGY.

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Emmet's Operation as a Preventive of Abortion.—Herman (*Journal of Obstetrics and Gynecology,* September, 1902) reports three cases where the tendency to abort was done away with by the repair of deep cervical tears by Emmet's operation. He speaks of the extravagant claims made for Emmet's operation shortly after its introduction, and says that because of lack of proof of its beneficial action on disease of the uterus the operation never has been highly considered in England. Herman, however, reasoned that, as the cervical canal is kept closed during pregnancy by the tonic contraction of its muscular fibres, so that the uterine contents are not expelled, although the uterus is contracting continually throughout pregnancy, a weakening of the cervix might lead to an abortion. A repair of the laceration would tend naturally to prevent premature expulsion of the contents of the uterus.

Sarcoma of the Uterus Associated with Fibromyomata.—Tate (*Journal of Obstetrics and Gynecology,* September, 1902) reports a case of associated sarcoma and fibromata of the uterus and emphasizes the importance, as borne out by the case, of a local examination and exploration of the interior of the uterus in all cases of offensive or hemorrhagic discharges occurring after the menopause.

The patient was aged fifty and passed the menopause five years before. One year before operation she began to suffer from an offensive vaginal discharge, purulent and a little blood-stained at times. Six months later the uterus was found to be hard and as large as a cricket ball. She grew progressively worse, suffering from rigors and high temperature and sugar was present in the urine. Examination, seven months later, showed an extremely offensive discharge and a pelvic tumor reaching to the height of two inches above the umbilicus. The tumor was quite mobile and not tender. Because of the large size of the tumor and of the offensive discharge it was thought to be a sloughing fibroid and total removal advised.

The uterus when removed showed two distinct parts. The larger part was an irregular excavation (representing the uterine cavity) surrounded by a malignant growth infiltrating the entire thickness of the uterine wall. The smaller part consisted of a spherical, smooth, hard, fibroma. The inner surface of the growth was broken down and gangrenous.

Microscopically the tumor proved to be a mixed, round and spindle celled sarcoma. There was no evidence of malignant degeneration of the fibroid.

Tate considers the case interesting because of the enormous extent of the sarcomatous disease without invasion of the fibroid growth. It is not probable that the sarcoma was due to degeneration of a fibroid growth because in this case the uterine cavity would not be in the center of a mass surrounded on all sides by a malignant growth. The fibrous septum which was present seemed to form a complete barrier to any invasion of the sarcoma cells.

The presence of sugar in the urine is another interesting feature of the case. It was hoped that the glycosuria was due to septic absorption and that it would disappear upon removal of the growth, but the subsequent history of the case showed that this was probably not the case as at last accounts sugar still persisted in the urine.

PEDIATRICS.

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Early Diagnosis of Pleuritic Effusion.—James K, Cook calls attention (*Medical News*, April, 1902) to many valuable practical points in the early diagnosis of pleuritic effusions in children. There is often great similarity existing between acute empyema and pneumonia. The patient is often taken with a chill, followed by a fever, pain in the side, catching respiration, cough, limitation of movement on the affected side of chest with an increase of movement on the opposite side. Oscultation often elicits fine crepitation and finally in a day or two dullness becomes apparent. The physician hastily pronounces this pneumonia and often has to stand the odium of having made a wrong diagnosis. He says the severity of the initial chill and the subsequent range of temperature are not always a safe guide as the initial chill and fever are often as marked as in a sharp attack of pulmonary inflammation, and the absence in the adult of the rusty sputum gives a strong inference of pleuritic trouble, while its presence is one of the most constant and important evidences of real pneumonia. The respiration-pulse ratio is important. If the respiration so increase that the ratio is three to one or two to one, the case is probably pneumonia. Increase of measurement of affected side is almost absolute evidence of the accumulation of fluid, but sometimes the fluid does not cause expansion of the side; on the other hand retraction of diseased pleura may cause a shrinkage of the affected side. Displacement of the heart is of great value in effusion. If the accumulation is on the left side the heart is carried over toward the sternum and the further the displacement the more diagnostic of pleuritic effusion. If the disease is on the right side it displaces the liver pushing it down, and if the effusion is extensive it pushes the heart up and to the left. In children the percussion note is not flat but dull, and the sense of resistance offered to the percussing finger is as valuable a sign as the percussion note itself. Fluid gives a much more unyielding front to the percussion stroke than consolidated lung. If with all these methods we are still left in doubt as to the nature of the case, we should not hesitate to employ the exploring needle.

The Differential Leukocyte Count in the New-Born.—L. M. Warfield (*American Medicine*, September 20, 1902) concludes as follows:

(1) The leukocytes at the day of birth are more numerous than at any other time of normal life.

(2) Nucleated red blood-corpuscles rapidly disappear from the circulating blood of the healthy infant within the first three days of life.

(3) The percentage of eosinophiles varies widely in the blood of babies of the same age.

(4) Myelocytes and "mastzellen" are only occasionally found and are in very small numbers.

(5) The percentage of large mononuclear and transitional cells is large compared to that found in the blood of adults.

(6) The polymorphonuclear cells at birth are not only relatively but absolutely increased. They begin to increase in numbers soon after birth and by the eleventh day of a healthy infant's life they are fewer in number than the lymphocytes, while the number of the latter variety of cell is actually increased; and the differential count of the leukocytes on the eleventh day is practically identical with the count given in the text-books as normal for the infant's blood.

Feeding Children.—The following valuable rules for feeding children are laid down by Gilman Thompson in his "Practical Dietetics" (*Pediatrics*, October 1902): (1) Allow time for meals. (2) See that the food is thoroughly masticated. (3) Do not allow nibbling between meals. (4) Do not tempt the child with the sight of rich and indigestible food. (5) Do not force the child to eat against its will, but examine the mouth which may be sore from erupting teeth, and examine the food, which may not be properly cooked or flavored. If good food is refused from peevishness, merely remove it and do not offer it again before next meal time. (6) In acute illness reduce and dilute the food at once. (7) In hot weather, give about one-fourth or one-third less food and offer more water. The young infant depends wholly on animal food, and derives the necessary carbon largely from the sugar of milk. The older child lives on animal food in part only and begins to derive additional carbon from bread and other cereal foods.

Use of Antitoxin.—Charles Gilmore Kerley (*Archives of Pediatrics*, October, 1902) establishes certain principles of action which should govern us in the use of antitoxin, so that it may be of value to the profession. He reports one hundred fifty-nine cases of diphtheria, one hundred three without antitoxin and fifty-six with antitoxin and says: "The death rate in diphtheria may be reduced to a very small percentage by the early use of full doses of antitoxin. Not less than three thousand units should be given in the first twenty-four hours if possible and this amount repeated if improvement is not promptly observed. I have noticed no other unpleasant results than the development of urticaria from the use of antitoxin." His principles are as follows: With visible membrane inject at once and take a culture. In croup inject if there is an inspiratory or expiratory obstruction. Reinject in twelve hours if the patient is not improved, or if improvement is not marked. If continued improvement does not follow reinject at twelve-hour intervals until the membrane disappears. Dosage: Two thousand units for a child under one year, to be repeated if necessary; three thousand units for a child over one year, also to be repeated if necessary.

Diagnosis between Perityphlitis and Intussusception.—Doctor J. C. Varco (*Australasian Medical Gazette*, August 20, 1902) considers the points of diagnosis between perityphlitis and intussusception may be stated as follows: Given, a mass impalpable in the right iliac region extending in the direction of the ascending colon, which of the two complaints is it?

(1) In intussusception the lump may be quite free from tenderness; in perityphlitis it may be so acutely tender as to render manipulation impossible.

(2) In intussusception the mass may be well defined, easily and distinctly mapped out; in perityphlitis its limits may be very obscure.

(3) In intussusception the sausage-shaped body may be so movable as to be rolled about in the abdomen; in perityphlitis it is quite fixed.

(4) In intussusception the right thigh can be extended without pain; in perityphlitis it may be kept flexed, and passive extension inflicts pain.

(5) In intussusception there is generally frequent movement of the bowels with sanious mucous stools; in perityphlitis the bowels may be confined.

(6) In intussusception there are marked tormina, the pains seeming to focus in the lump; in perityphlitis these may be absent; sometimes, however, they are present and severe.

(7) In intussusception the temperature may be normal or subnormal; in perityphlitis it is raised.

OPHTHALMOLOGY.

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The Microorganisms Found in the Conjunctival Sac and in the Various Forms of Conjunctivitis.—Doctor Germano Corsini (*Ophthalmic Record,* October, 1902) states: Bacteriology has in late years acquired such importance, especially in affections of the conjunctiva, as to call for a modification of the old classification that clinicians made of its diseases based on anatomical signs, on the appearance of its secretions, the clinical symptoms, et cetera. Today there is a widespread recognition by all ophthalmologists of the fact that to establish an exact scientific diagnosis it is necessary to take into account the etiological factors represented by microorganisms.

After reviewing the researches made on secretions from the normal eye, the various forms of inflammations are taken up, described, and the following conclusions drawn.

(1) The microscopical examination of the conjunctival secretion is of great value in diagnosis, and in some cases is necessary to determine the precise character of a conjunctivitis. When the results obtained are unsatisfactory doubts may almost always be cleared up by a further study of cultures in various media made directly from the conjunctival exudates.

(2) The bacteriological report is a sure means of classifying the affection; many cases of conjunctivitis which present all the clinical data necessary to place them in one class or another, when studied from the bacteriologic standpoint often represent attenuated cases of a conjunctivitis due to quite a different pathogenic agent, which, in a condition of greater virulence, would have produced an exudation of a very grave and deleterious nature.

(3) The microscopic examination is not equally satisfactory or easy in all forms of conjunctivitis. Fortunately it is comparatively certain in the usual examples of catarrhal conjunctivitis. It is not difficult to deal with diplobacilli, streptococci and staphylococci; in the case of the pneumococcus and of the pseudodiphtheritic forms special care and some patience are required.

Clinic and Bacteriologic Observations on Acute Conjunctival Catarrh.—O. Pes (*Archiv. f. Awgenheilk.—Ophthalmic Record*), in seventy-six cases of acute catarrh of the conjunctiva, found mixed infection twenty-nine times. In the forty-nine cases of simple infection, staphylococcus pyogenes (in the various forms) was found nineteen times; Klebs-Löffler bacillus seventeen times; diplococcus of Fränkel-Weichselbaum six times; streptococcus pyogenes three times and diplobacillus of Morax-Axenfeld twice. Pes considers the Weeks bacillus of acute conjunctivitis to be identical with Klebs-Löffler bacillus.

THERAPEUTICS.

BY DELOS LEONARD PARKER, PH. B., M. D., DETROIT, MICHIGAN.
LECTURER ON MATERIA MEDICA IN THE DETROIT COLLEGE OF MEDICINE.

Dry Hot Air In Therapeutics. — Skinner (*Journal of Advanced Therapeutics*, August, 1902) publishes a paper on the above subject read by him before the Clinical Society of the New York School of Physical Therapeutics, in June, 1902. He begins by saying the range of subjects to which this remedy is applicable is much larger than is understood by the profession at large. Those who use it properly, he says, know not only this but also that it has great advantage over all other measures in the treatment of many pathological conditions.

The applications of hot air may be local or general. Effects from these different methods of use differ in kind and in degree. Those of a local nature do not affect the general system. This is shown, for instance, by the fact that treatment of a joint affected by true inflammatory rheumatism, a condition wherein the focus of infection is in the joint itself, is followed by relief, while the treatment of a similar locality affected by arthritis deformans, a condition secondary to impaired trophic centers, is not accompanied by beneficial results.

Hot air affects physiological functions in two ways: First, by direct stimulation of cell metabolism in the part treated, and second, by a reflex acceleration of cell nutrition produced by the effect of the heat upon the nerve endings in the skin.

In diseases dependent upon pathogenic microorganisms the good effects are secured through the germs being subjected to increased cell metabolism and stimulated leucocytosis. There is no proof to show the heat itself to be the cause of the germ destruction. Perspiration is always induced by this procedure and when a toxin is in the blood a certain amount of it is eliminated on account of this circumstance. The general temperature of the body and the heart's action are only rarely affected by the local application of heat.

In application of the remedy to the whole body the action is reflex through the spinal sympathetic system. Effects are shown by an increase in the number of both red and white blood corpuscles and also in kidney secretion and amount of urea excreted. These effects continue from four to twenty-four hours. There is also rise of temperature as shown by mouth from one to four degrees Fahrenheit and an acceleration of pulse rate and respiration. In a word, the functional activity of every organ and tissue of the body is augmented.

Of the pathologic conditions in which this therapeutic measure is indicated, special mention is made of rheumatism, arthritis deformans, sprains, pneumonia, local septic infections, and acute and chronic nephritis.

To be efficacious the apparatus for local use must be capable of producing and maintaining a temperature of at least 400° Fahrenheit, and that for general use one of 350° Fahrenheit.

Doctor Skinner closes his article with the following words: "Hot air is simply a rational therapeutic measure which, either alone or in combination with other remedial agents, will increase greatly our power to overcome pathologic conditions, and which, because of the profundity of its influence in many situations, is entitled to an important position in our armamentarium."

HYGIENE.

By GUY LINCOLN KIEFER, A. B., M. D., Detroit, Michigan.

LECTURER ON HYGIENE IN THE DETROIT COLLEGE OF MEDICINE AND HEALTH OFFICER OF THE CITY OF DETROIT.

The Transmission of Venereal Disease by Water-Closets.—Time was when water-closet contamination as the origin of a gonorrhea in a patient was received with guffaws by his associates and with an incredulous but suave smile by his medical attendant (*New York Medical Journal,* August 23, 1902). Credia Judaeus, non ego, was the universal state of the mind. To be sure, even now, in the absence of very definite reasons to the contrary, we consider it much more likely to have been contracted in the ordinary way. But we no longer regard water-closet transmission as a reductio ad absurdum of etiology. Still, as there are many who may, even now, be ultraskeptical, we would call attention to an article by Doctor M. T. Brennan, in the *Revue Medicale du Canada* for July 9. Doctor Brennan saw a patient with an acute gonorrhea and learned that while waiting to enter his consulting room, he had used the doctor's closet. The doctor took a slide from the discharge, and subsequently, moved by curiosity, examined the anterior and inner portion of the seat, and there found some crusts of pus, already dried. The crusts were moistened with sterilized distilled water and another slide taken. Both slides showed abundant gonococci. Doctor Brennan points out that, practically always, the penis of the man and the pubic hair of the woman come in contact with the front part of the seat, and that almost infallibly, some of the crust, if present, will become moistened and be carried away on the person. Doctor Brennan enforces the very obvious, but rarely used, precautions of (1) always examining the seat, (2) avoiding contact of the penis or pubes with the anterior part, (3) covering the forepart of the seat with paper, especially by women, (4) never pulling the plug until after rising from the seat, (5) cleansing the parts with paper after using public conveniences. Finally, he suggests a return to the method in vogue a millennium ago in Pompeii, where the seats of the sterquilinia were incomplete in front. By this means all contact would be avoided.

We would add that, in our opinion, the circumference of the aperture in the seats of water closets is, in this country, almost universally too small; in addition to the danger above mentioned, the compression of the nates seriously interferes with defecation and tends to induce habitual constipation.

The Slate.—Abolish the old-fashioned slate (*American Medicine*, September 27, 1902) because it is impossible to prevent the dirty and dangerous habit of using saliva and the fingers to "rub-out" the work upon it. In the Ohio State Bulletin, May, 1902, Doctor Hurty tells of an epidemic of diphtheria which broke out in a district, the school being twice closed and the room thoroughly disinfected each time, but the disease broke out a third time after the death of two pupils. Then the bacillus was found in the teacher's throat, who had been ill with "a cold" all winter. The children's throats harbored no diphtheria bacilli. The teacher, it was learned, had the habit of correcting the children's lessons upon their slates, and used her own saliva to erase the figures, writing, et cetera, upon them. After disinfection and isolation of the teacher the epidemic ended. Even on grounds of cleanliness and good habits in writing, the slate should be displaced by paper and pencil. Paper good enough for such purposes is now manufactured so cheap that its expense can no longer be made an excuse for continuing the use of dirty slates. One speaker referred to a porcelain slate for use with a lead pencil, the writing on which could be erased with a dry cloth. The cheap "scratch-block" of paper would seem preferable.

Smallpox.—The question of prime importance (*The Sanitarian*, October, 1902) relating to public health at the present time is the prevention of the spread of smallpox. At no time in the history of the United States has this disease been more generally prevalent. The only safety of any individual is by vaccination. The only prophylactic for a community is vaccination. The fact of its protection is as well settled as any in sanitary science.

The general vaccination of a community is in the interest of the taxpayer. The average cost of an epidemic of smallpox in a town is often many times what it would have cost for full protection from it. And with the epidemic comes the cost of both. It is well for selectmen and city councils to think of this.

Antituberculosis Measures in Naples.—Sanitary laws now enforced in Naples require (*The Sanitarian*, August, 1902) that all tuberculous cases in hospitals, orphan asylums, prisons, hotels, schools, convents, dairies, et cetera, shall be reported; also that cuspidors shall be provided in public places, with a notice prohibiting expectoration elsewhere.

Examination of Illinois School Children.—Acting upon the suggestion of the Chicago Board of Education, the Illinois State Board of Health has recommended (*American Medicine*, September 6, 1902) that the school authorities inaugurate a system of examination of the eyes and ears of the school children of the State. The examinations are to be held once yearly by teachers and embrace ten questions of a practical nature which can be answered in five minutes. If a defect is found, the patient is notified. Examinations are not made compulsory.

PATHOLOGY.

BY ALDRED SCOTT WARTHIN, PH. D., M. D., ANN ARBOR, MICHIGAN.
JUNIOR PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

The Genesis of Glioma Retinæ in Neuroglia.—Brown Pusey (*Johns Hopkins Hospital Bulletin*, October, 1902). According to Flexner and Wintersteiner the most malignant tumors of the retina are composed in large part of cells arising through proliferation of the most highly specialized cells of the retina, namely, the rod and cone cells, To such growths they therefore apply the designation *neuroepithelioma*, as opposed to the older term *glioma*, by which such tumors have usually been known.

This innovation in terminology and the view that specialized nerve-cells can proliferate has met with little acceptance among pathologists. Practically all pathologists take the position that nerve-cells, at least in postnatal life, do not proliferate to form tumors. In view of the inability of ordinary neurocytes to proliferate either in inflammatory processes or in tumors, it seems very unlikely that the visual cells of the retina should have that power.

The specimen described by Pusey came from a child of four and a half years. The retina was found to be irregularly thickened and showing but little resemblance to the normal structure, the tissue having a reticular structure in which the fibres greatly predominate. Sections of the posterior part of this tissue, stained with Mallory's neuroglia stain, show that it is composed principally of a mesh-work of neuroglia fibres. In the portions most closely resembling normal retina there is an excess of neuroglia. In other portions characteristic rosettes are numerous; and these stain as neuroglia with Mallory's stain. No cells resembling rod and cone cells were found. The chief conclusion drawn from the structure of this specimen is that it is a retina in which the neuroglia elements have been developed at the expense of the other tissues. The ordinary nervous elements of the retina, the rod and cone cells, the layer of bipolar cells, the ganglion cells, are either absent entirely or present in scanty numbers. The neuroglia tissue is greatly increased as shown by Mallory's stain. From the staining reaction with Mallory's neurogliar stain there seems to be no question of the neurogliar character of the rosettes. Comparing these formations to normal retinal tissue as did Flexner and Wintersteiner, Pusey holds that the lumen of the rosette corresponds to the internal limiting membrane and not the external; the radiating fibres, which are neuroglia fibres, to the fibres of Mueller, and the distal nuclei to the neuroglia nuclei normally found in the internal granular layer. The projections into the lumen of the rosette are neuroglia fibres (not rudimentary rods and cones) which have not found their termination in the wall.

The rosettes being composed of neuroglia cells and fibres, the term *neuroepithelioma retinæ*, as suggested by Flexner and Wintersteiner — principally from their conception of the character of the cells in the rosettes—should not be accepted. Pusey also states that there is good reason for doubting the assertion of Weigert that the neuroglia fibres have no connection with the cell body. In the sections from this case an intimate connection of the fibre with the cell could not always be discerned, but in some areas such a relationship was definitely proved. This agrees with the observation of Taylor who also used Mallory's stain, and with the conclusion of Bonome. Pusey did not succeed in staining sections with Weigert's neuroglia stain, but regards this as probably due to the manner of preparation of the tissue.

Acute Lymphatic Leukemia without Enlargement of the Lymph Glands.—Reed (*American Journal of the Medical Sciences*, October, 1902). This observer, reporting a case of acute lymphatic leukemia, notes as points of special importance the fact that in a sudden and rapidly fatal illness, in which there were no especial features other than hemorrhage, anemia and a marked increasing weakness, there was present the blood picture of an intense lymphocytosis, establishing thereby the diagnosis of acute lymphatic leukemia. At autopsy no enlargement of the spleen or lymph glands was found, but the bone-marrow showed microscopically the features of lymphadenoid change. Microscopically, the bone-marrow was found to consist mainly of lymphoid elements, the granular cells of the parenchyma being conspicuously few in number. These lymphoid elements consisted of two varieties of cells, one smaller than the red corpuscle with a densely staining homogeneous round nucleus and a small amount of clear protoplasm, the other, small and large cells of the typical lymphocytic type, the nucleus relatively large in respect to the protoplasm, and showing always a nuclear framework. Both types of lymphoid cells were proliferating rapidly by direct division in the bone-marrow. The blood was full of these elements, and all the organs examined, were injected, as it were, by these cells, which, however, showed no evidence of proliferation outside of the bone-marrow. In the spleen and lymph glands the ordinary lymphoid cells of the lymphatic tissue could be easily distinguished from the small cells which had come from the bone-marrow, both by their morphological and staining properties. There was no evidence of hyperplasia in either the spleen or lymph glands. Reed regards these findings as proving conclusively that this was a *lymphocytosis arising from proliferation of lymphoid cells in the bone-marrow, death occurring before any other organ in the body showed involvement.* In conclusion, she suggests that there are *three forms of leukemia, all due to myelogenous changes, and that these should be known as the myelocytic, lymphoid and mixed-cell varieties, if we wish to make the blood picture the basis for clinical divisions.* Any of these three forms may be either acute or chronic; the myelocytic is usually chronic, the lymphoid usually acute. The nature of the disease is still undiscovered. Leukemia as we know it is simply the manifestation of some poison which affects especially the bone-marrow, the blood-forming organ in the adult, and ultimately causes death.

The Influance of the Spleen on Natural or Acquired Hemolytic Properties of Blood Serum.—Levin (*The Journal of Medical Research*, June, 1902). That the function of the spleen is not absolutely essential to the preservation of the life of the organism has been shown by the numerous splenectomies in both man and animals. There are, however, many facts tending to show that the spleen plays an important part in the protection of the body against injurious agents invading it from without. The fact that hyperplasia of this organ occurs in infectious diseases, and that the spleen seems to amass and arrest the further distribution of organisms has led investigators to suppose *a priori* that the spleen may have a protective influence against infection or intoxication. Experimental work in this line has led, however, to a great diversity of results. The spleen may protect against intoxication, or may not influence it at all, or may even favor it. On the production of acquired bacterial immunity the extirpation of the spleen has according to many results no influence. Splenectomized animals are just as easily immunized as normal ones. Levin's investigation was carried out for the purpose of ascertaining the influence of the spleen upon the natural or acquired hemolytic properties of the blood-serum. Defibrinated bullock's blood was injected three to four times at intervals of several days into the peritoneal cavity of rabbits. After such injections the rabbits remain immune to bullock's blood as long as four months. In testing the hemolytic power of the blood serum of the rabbits one part of the serum was added to four parts of bullock's blood diluted one to ten in physiological salt solution. Blood-serum of the immunized animals in the above dilutions induced complete lysis in twenty minutes to two hours, while the blood-serum of normal rabbits is not at all lytic for bullock's erythrocytes. As a result of experiments upon splenectomized rabbits Levin found that the spleen is undoubtedly not indispensable for the acquired or the natural hemolytic properties of the blood-serum. Nor does it appear to elaborate those substances upon which the normal or artificial properties of the blood-serum depend. The last question however needs further research with a different technique.

EDITORIAL COMMENT.

THE OUTLOOK.

TOGETHER with the ever changing aspects of things in general one cannot fail to be impressed with the newer relations within and about the medical profession. We read of the puerile, tentative, and almost slavish pretense with which the earlier followers of the ars medica faced their fellow beings, but we see none of it now. Today there is a positiveness and a presumption of influence and power among medical men that would astonish the doctor of a hundred or even fifty years ago. In the acquirement of a medical education, in the regulation of medical practice, in the practice of medicine itself, in the charging for services and in the collection of fees, in the relations of physicians, one toward another, in the influence of the doctor in civil and political life, and in the dependence upon him of other industrial classes,—in these and other ways there have been wrought many changes, some unquestionably for good and others of doubtful service to the profession or to mankind in general. Changes are still going on, and it is pertinent to ask, what is the outlook?

In the first place it is notable that there is now much useful knowledge to be had. He who has acquired it and is able to apply it has at once a confidence that dignifies himself and his work. Having rendered real service there is begotten the feeling of a creditor. An industrial class is at once developed that regards the interests of its members and opposes outside encroachment. In this way has arisen the situation of today.

Medical education is undergoing great changes. The institution of State boards for licensing and the regulation of medical practice, and the heavily endowing of a few institutions are rapidly limiting the opportunities for acquiring medical education and restricting the sources of it to an increasingly smaller number of institutions. The denouement will not be perfected in this generation, but there is food for the imagination.

Medical organization is keeping pace with that of other industrial classes. To be sure there are scabs among us but they hurt the people, not the profession, except as they are sometimes mistaken for us. Through this organization we are fast becoming of one mind on many matters of importance to the profession. By no means have the high ideals been lost, either those affecting ourselves or those concerning us in our relation to our patients. The splitting of fees, underbidding for business and other acts of outlawry will be with us until the millennium, but the general body will not descend to such things. The people themselves are fast becoming their own physicians to a wonderful degree, and the physician who is not posted on the latest discoveries will need either an unusual amount of tact or another occupation. Medical services are daily becoming more expert in all lines, and fees for the same will be raised.

The dignity and influence of the profession is assured. Through its splendid organization our welfare as a class will be guarded and hygienic laws will be unselfishly obtained for the benefit of the community. The law profession seems powerless alone to solve the problem of expert testimony, but it begins to look now as though, from an appreciation of the difficulties from a medical standpoint, the necessary restrictions could be more easily arrived at through an intelligent coöperation of both.

THE SERUM THERAPY OF SCARLET FEVER.

IN another department of this issue reference has been made to the work of DOCTOR MOSER, of Vienna, and DOCTOR CHARLTON, of Montreal, and their experience in the bacteriology and serum therapy of scarlet fever. Such reports as these are always interesting and remind one of the prophetic words of BEHRING, who, in 1892, said that to obtain a remedial serum for human streptococcal affections was only a matter of industry. Whether this prophecy is seeing its fulfillment is still an open question. The experience of the past has given us little else than disappointment and failure in the antistreptococcic serum therapy of scarlet fever; so we are compelled to accept with reserve all reports whether favorable or not. The number of favorable cases reported by MOSER and CHARLTON, while they are of great value, cannot be said to furnish a sufficient basis for definite conclusions.

There are many kinds of streptococci, all of which differ among themselves in character of growth, in virulence, and in the production of bacteriolysins. From these are prepared many sera and they in turn possess like differences. MARMOREK was the first to employ and report upon the effects of antistreptococcic serum in scarlet fever. He obtained his streptococcus from a case of tonsillitis, and he reported brilliant results especially in cases showing enlarged glands and nephritis. MARMOREK'S results have not been satisfactorily verified. PETRUSCHKY, BAGINSKI, JOSIAS and others, some of whom obtained their serum directly from MARMOREK, conclude that for purposes recommended the serum is a failure.

It would appear more reasonable that sera prepared by the use of streptococci isolated from the blood of scarlet fever patients would be more effective than those prepared from streptococci from other sources. In this respect MOSER'S results must be looked upon more favorably than those of others. The serum he used was prepared by immunizing horses against virulent streptococci isolated from the blood of severe cases of scarlet fever. CHARLTON'S thirteen favorable cases are of importance, and further reports from Montreal will be watched for with interest.

Just before going to press a report comes from **Baginski**. In the *Deutsche Medicinische Wochenschrift*, Volume XXVIII, V.-B., Number XLIII, he records six hundred ninety-six cases of scarlet fever. In all but five of these he was able to demonstrate streptococci either in the pharyngeal secretions, in the blood, or in the organs after death. This further experience with **Marmorek's** serum leads him as before to the conclusion that it is valueless. Of twenty-six cases of scarlet fever treated with serum obtained from horses inoculated with streptococci isolated from scarlet fever cases, twenty-three recovered. The other three being in a critical condition when the treatment was instituted, died. Of these twenty-six cases only seven presented complications.

COWIE.

CONTEMPORARY.

PSYCHIATRY IN AMERICA.

[PHILADELPHIA MEDICAL JOURNAL.]

It is much to be wished that some of the younger generations of psychiatrists in this country would confine themselves in their writings to telling how much they themselves know instead of describing how little other and older persons know. In a paper read at the recent meeting of the American Medico-Psychological Association at Montreal, Doctor Louïse G. Robinovitch read a paper in which she drew a comparison between the work done in European asylums and that done in American asylums. The comparison was altogether uncomplimentary to the American institutions and reads like a travesty. We are not surprised to learn from a foot-note by Doctor Robinovitch herself that the reading of her paper was "received with marked disfavor." It could be roundly criticised for poor taste, if for nothing else. We are quite convinced that American hospitals for the insane occupy as high a plane of efficiency as some of their critics. Some of these hospitals are doing good scientific work, and all of them are at least discharging the duty for which they were primarily instituted, that is, the care of the insane. Questions of classification, on which Doctor Robinovitch lays such exaggerated stress, are justly not deemed of as much importance among us as the cure of patients. Her paper was merely academic. We can only deplore, for their sake, the strabismic vision of students in psychiatry who can see nothing but what is admirable in Europe and nothing but what is reprehensible in America. The only injury done is to their own influence.

MEDICAL NEWS.

LUCKY PRIZE COMPETITORS.

THE two prizes offered by the Maltine Company for the best essays on "Preventive Medicine" were awarded at Buffalo, on October 18, by the committee selected for the purpose, which was composed of Doctor Daniel Lewis, of New York; Doctor Charles A. L. Reed, of Cincinnati; and Doctor John Edwin Rhodes, of Chicago. Two hundred nine essays were in competition for the prizes, and hailed from forty-one states and territories, Michigan contributing seven. The first prize of one thousand dollars was awarded to Doctor W. Wayne Babcock, of Philadelphia, whose essay was entitled "The General Principles of Preventive Medicine," signed, "Alexine." The second prize of five hundred dollars was awarded to Doctor Lewis S. Somers, also of Philadelphia, whose essay was entitled "The Medical Inspection of Schools, a Problem in Preventive Medicine," signed, "Broad." The two essays will be published for gratuitous distribution to the medical profession.

THE DEMISE OF A NAVAL SURGEON.

DOCTOR WALTER ELMO GRIFFIN, quarantine and health officer of the Lubig Naval Reservation in the Philippine Islands, died at Cavite on October 28. He was a graduate of the medical department of the University of Michigan, and at the outbreak of the Spanish-American war joined the army of invasion, rendering hospital service until the close of the conflict. In 1899 he received the appointment of assistant surgeon to the army in the Philippines, with the rank of first lieutenant, and remained on duty for two years. During this period he devoted considerable attention to the study of dysentery among the troops, and his observations were published in The Physician and Surgeon some time ago under the caption of "Specific Dysentery." In 1901 he returned to Michigan and spent several months in postgraduate work at his alma mater. In February of the following year he passed the examination for entrance into the navy and received the commission of assistant surgeon, with the rank of first lieutenant, returning to the Philippines in April. Shortly after his arrival there, however, he contracted typhoid fever, and was removed to Japan in the hope that the change might prove beneficial. Although he apparently recovered from this illness, he died about two months after assuming the duties of his post at Lubig.

THE LAST OF THE FIRST.

DOCTOR ROBERT C. KEDZIE, Professor of Chemistry in the Michigan Agricultural College, died recently at his home in Lansing. His early literary education was received at Oberlin College, and later he graduated from the University of Michigan with the first medical class in 1851. After about ten years, during which time the doctor was engaged in the practice of medicine, he received the appointment of surgeon to the Twelfth Michigan Infantry at the outbreak of the Civil war, and served his country in this capacity for nearly a year, when he resigned to accept the professorship of Chemistry in the above institution, which he held for nearly forty years. Doctor Kedzie did inestimable service for the people of his state by exposing the processes by which various adulterated goods and patent medicines are manufactured; by securing for the farmer protection against useless fertilizers; and by compelling the oil companies to provide pure kerosene. In 1900 the University of Michigan conferred upon him the honorary degree of LL. D. His demise removes from earth the last member of the first medical class of his alma mater.

MINOR INTELLIGENCE.

DOCTOR DAVID INGLIS, of Detroit, announces the removal of his offices from 21 State street to 1329-31-32 Majestic Building.

DOCTOR GEORGE E. FAY announces his removal from Ann Arbor to Detroit; office and residence 665 Second avenue, corner Selden avenue.

THE oldest medical society in the United States is the Litchfield County (Connecticut) Medical Society. It was founded in 1765 and is still in a flourishing condition.

LICENSES were granted to seventy-five embalmers out of the eighty-seven who took the examination at Battle Creek, September 12 and 13. The twelve who failed on this occasion will be allowed another opportunity to air their knowledge without extra charge.

YALE medical school has a new clinic building which cost ninety-six thousand dollars. It is the gift of Mrs. T. G. Bennett, whose husband was a member of the Yale corporation for many years, and was erected in memory of her mother, Mrs. Winchester, who is also a benefactor of Yale University, having provided for an electrical laboratory about ten years ago, which building is known as Winchester Hall. The new medical school will be completed by the addition of three other buildings—one for anatomy and pathology, to cost one hundred thirty-two thousand dollars; one for offices and lecture rooms, to cost fifty-six thousand dollars, and one for chemisty and physiology, to cost seventy-nine thousand dollars.

DOCTOR ALDRED S. WARTHIN, of the University of Michigan, read a paper before a joint meeting of the Chicago Pathological and the Chicago Medical Society, which was held in the Schiller Theatre Building, November 12. Subject — "The Normal and Pathological Anatomy of the Hemolymph Nodes."

THE lecture rooms in the new medical building of the University of Michigan will be equipped with the Carmen projection apparatus. By means of this instrument pictures in black, white or in color can be reproduced on a screen, magnified fifty times, thus obviating the necessity of employing lantern slides.

THE glass vaccine point is a new and original idea with the H. K. Mulford Company. It is manufactured of flint glass, similar in size and shape to that of the ivory point, permits of thorough scarification, is easily sterilized, and is supplied either in the form of dry or glycerinated point, no advance charge being made for the latter.

THE Wayne County Medical Society recently elected the following officers: President, Doctor Frank B. Tibbals; vicepresident, Doctor Charles G. Jennings; and secretary-treasurer, Doctor Hugh Mulheron. Board of directors, Doctor Arthur D. Holmes, Doctor Stanley G. Miner, Doctor Henry O. Walker, Doctor Samuel Bell, Doctor John E. Clark.

THE preliminary announcement for the sixth general conference of the health officers and other health officials in Michigan has been issued. The conference will be held at the State Laboratory of Hygiene, in Ann Arbor, on Thursday and Friday, January 15 and 16, 1903. This is to be a sanitary convention of officers and delegates, professional and nonprofessional, who are interested in public health work, and will not assume the character of a strictly medical convention.

THE Mississippi Valley Medical Association elected the following officers at its twenty-eighth annual meeting, which was held in Kansas City, October 15, 16 and 17: President, Edwin Walker, M. D., Evansville, Indiana: first vicepresident, Hugh T. Patrick, M. D., Chicago; second vicepresident, William Britt Burns, M. D., Memphis, Tennessee; secretary, Henry Enos Tuley, M. D. (reelected), Louisville; treasurer, Thomas Hunt Stucky, M. D. (reelected), Louisville. Next place of meeting, Memphis, Tennessee, October 7, 8 and 9, 1903.

THE Oregon State Medical Society elected the following officers on September 11: President, Doctor Henry Waldo Coe, Portland; first vicepresident, Doctor F. W. VanDyke, Grant's Pass; second vicepresident, Doctor J. A. Geisendorfer, The Dallas; third vicepresident, Doctor J. P. Tamiesie, Hillsboro; secretary: Doctor A. D. Mackenzie, Portland; treasurer, Doctor Mae Cardwell, Portland.

THE influence of mosquitoes in transmitting malaria is being determined by experimentation in Formosa. It is reported that a battalion of soldiers was protected from these pestiferous insects for one hundred sixty-one days and escaped the disease, while the hospital records of an unprotected battalion disclosed the presence of two hundred fifty-nine cases of malaria. The experiments were conducted in the same locality and under conditions generally considered incident to the acquisition of malaria, barring the protection afforded in the first instance.

RECENT PUBLICATIONS.

REVIEWS.

GENERAL MEDICINE.*

THE Fall volume (October, 1902) on "General Medicine," of The Practical Medical Series, is larger than its predecessor, but presents about the same arrangement of subject matter. The subjects selected are those of special interest at this season of the year, especial attention being given to tuberculosis, pneumonia, pleurisy, bronchitis, diseases of the heart—including the pericardium, the plague, the eruptive fevers, rheumatic fever, gout, the blood diseases, diseases of the kidneys, et cetera. More attention has been given to the therapeutics of the various diseases considered, than heretofore. The same complimentary remarks may be passed upon this volume as upon its predecessors. It is an extremely useful, time and money-saving book for the general practitioner, whose time is limited and who has access to only a few journals, none of which are foreign. By means of it he can become familiar with the best of the world's recent literature upon the diseases included in this field. The abstracts are concise and clear, and sufficiently detailed to satisfy the majority of readers. If not, the bibliography tells where the original text can be found. J. R. A.

* By Billings and Salisbury. Year Book Publishers, Chicago.

A BRIEF OF NECROSCOPY AND ITS MEDICOLEGAL RELATIONS.*

THIS pocket manual is an attempt to give in a concise and brief form the chief essentials of the medicolegal autopsy, in so far as technique and diagnosis are concerned. It is, therefore, designed especially for the physician who may be called upon to act the rôle of the expert witness. As an effort to place the autopsy upon its proper footing in legal questions the publication of this manual is to be commended. Inasmuch as the autopsy is the foundation stone upon which all medicolegal testimony must be built, in those inquiries concerning the cause of death; and, as at present in this country there is no definite autopsy-technique fixed by law, this little book may be regarded as a step toward a much-needed reform in these matters. The methods given follow closely those of Graupner and Zimmermann (quoted in the preface as Gräbner and Zimmermann). Though much condensed the subject matter of the book is for the greater part of very great value, and in this concise form will serve as a convenient means of reference for both physicians and students.

*By Gustav Schmitt, M. D. 3¾ x 6¼ inches, leather, 186 pages. $1.00 net. Funk & Wagnalls Company, New York and London.

STANDARD MEDICAL DIRECTORY OF NORTH AMERICA.*

THE publishers of the "Standard Medical Directory" have endeavored to give, in a neat and attractive form, a concise and complete list of physicians in the United States (including its new insular possessions), Canada, Cuba, Mexico, and Central America. Also a list of medical officers of the United States army and navy, medical societies, medical colleges, medical laws and boards, medical publications, hospitals and sanitariums, mineral springs, drugs and medicines, medical and surgical products, manufacturers, life insurance companies, et cetera. That errors and inaccuracies should creep into a work of this scope is not surprising The "Standard" is an excellent compilation. It has incorporated within its covers a great deal of valuable information, obtainable with ease only in a work of its character. The section devoted to the various state and provincial medical laws is especially valuable. In this directory, however, in order to locate a physician, his town and state must be known.

D. M. C.

*Published by G. P. Engelhard & Company, 358–362 Dearborn street, Chicago.

PRACTICAL MEDICINE SERIES—PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY.*

THE present volume offers much room for criticism. Many important articles appearing during the time covered by its abstracts have been omitted; and a very large proportion of the abstracts given consist of the author's conclusions alone. Such abstracts are many times worse than useless. Further, sufficient care has not been exercised in proof-reading, some of the names of the original writers being entirely incorrect. The impression is gathered from the volume that for many of the abstracts the original articles were not carefully read, and that some of the abstracts have been taken second-hand from the abstract columns of some of the weekly journals. If abstracting is not worth careful work it is not worth the while.

*By Evans and Gehrman. August, 1902. Year Book Publishers, Chicago.

PHYSICAL DIAGNOSIS.*

IN spite of the fact that the number of works on physical diagnosis by American authors has become rather numerous, this book deserves favorable mention. It has 432 pages, and is divided in five parts, namely: regional anatomy, the respiratory system, the circulatory system, the abdominal organs, and examination with *x*-ray. A striking feature of the work is the large number of excellent radiographs illustrating the normal chest, and diseases of the lungs, heart and arteries. It is an excellent text-book for the instruction of students in physical diagnosis.

J. R. A.

* By Le Fevre, M. D. Published by Lea Brothers & Company, Philadelphia.

THE MEDICAL NEWS VISITING LIST.*

IT would seem impossible to gather conveniently together more data of general daily use to a physician than is incorporated in this visiting list. A thumb index is provided for ready reference to the blanks for recording all details of practice, both clinical and financial. The list is published in four styles: weekly, dated for thirty patients; monthly, undated for one hundred and twenty patients; perpetual, undated for thirty patients weekly; and sixty patients, undated, without the preliminary data for those requiring specially large record books.

D. M. C.

* Lea Brothers & Company, Philadelphia.

The Physician and Surgeon

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ORIGINAL ARTICLES.

MEMOIRS.

THE ILIAC SEGMENT OF THE URETER.

BY BYRON ROBINSON, B. S., M. D., CHICAGO, ILLINOIS.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE iliac segment of the ureter is the portion which passes ventral to the iliac vessels.

For convenience of anatomic description and surgical application we shall adopt the anatomic and topographic plan.

I.—ANATOMIC PLAN.

The location of the iliac ureteral segment is between the peritoneum ventrally and the iliac vessels dorsally. The ureter may cross: (a) the common iliacs; (b) the external iliac; (c) both iliacs, externa and interna; (d) they may cross the bifurcation of the iliacs.

The division of the iliac segment consists of proximally the blunt termination of the lumbar ureteral spindle and distally the beginning of a pelvic ureteral spindle while the central portion consists of a bent angle in the ureter where it crosses the iliac vessels—what I shall term the flexure iliaca ureteris.

Its limitation is from the distal end of the lumbar spindle to the beginning of the pelvic spindle—about one inch in length.

Its direction is obliquely distalward and lateralward. The vasa iliaca are crossed by the ureters at an acute angle.

Its form is that of a cylinder, the third narrowest portion of the ureter—one-fifth of an inch in diameter. The iliac segments of the ureter are frequently nonsymmetrical in their crossings of the vessels. The left iliac ureter is frequently nearer the middle line.

The separation of the iliac ureteral segments is about three inches

The tissue matrix consists of a universally loose areolar bed possessing, however, vastly more limited range of motion than the lumbar ureter, It is intimately connected with the peritoneum by strong fibrous strands,and the ureter follows the peritoneum in stripping the ureter from the vasa iliaca.

The fixation apparatus of the iliac segment is a loose cellular bed, but the ureteral curve as it embraces the iliac vessels adds to its immobility. The peritoneal fibers holding it to the peritoneum fix it to some extent.

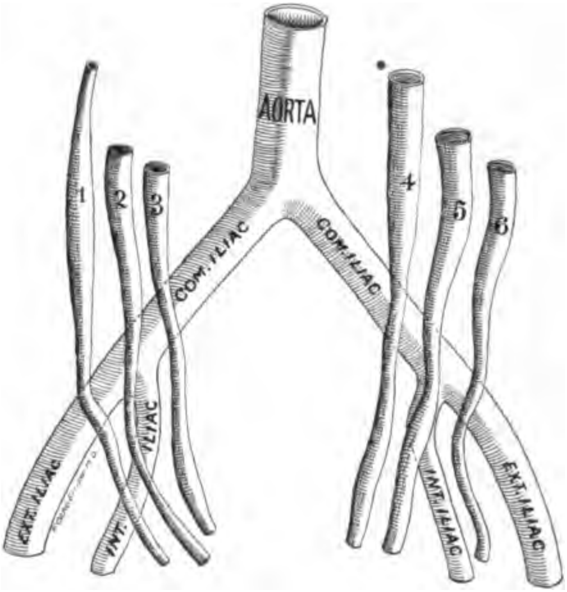

FIGURE I.—(AUTHOR). INDICATES THE LOCATION OF THE CROSSING OF THE VASA ILIACA BY THE URETER.

It is the flexura iliaca ureteris or the middle arterioureteral crossing.

Its course is in a limited cellular tissue between the peritoneum and iliac vessels. In spare subjects one can see the iliac segment of the ureter, shimmering through the peritoneum, like a white band as it curves over the vessels to pursue its course in the pelvis.

If one strips the peritoneum from the iliac segment of the ureter, it will tend to follow the peritoneum rather than cling to the iliac vessels. Caution should be exercised in separating the ureter from the iliac vessels as at the point where the ureter crosses the iliac vessels, that is, the middle arterioureteral crossing, there is emitted the arteria ureterica media.

II.—TOPOGRAPHIC PLAN OF THE ILIAC URETER.

The topographic plan of the iliac ureter is the important one for physiology, anatomy, diagnosis and surgical intervention. The topography of the iliac ureter will be considered under four heads, namely: Holotopy, Skeletopy, Syntopy, and Idiotopy.

A.—HOLOTOPY. (*Relation to General Body.*)

(1) The iliac segments are located almost symmetrically bilateral, the left ureter being generally nearer the middle line.

(2) The iliac segments are separated, about three inches being the second point of closest approach of ureters to each other.

(3) The iliac segments of the ureters are at junction of the distal converging lumbar segments and the proximal diverging pelvic segments.

(4) The iliac segments appear as curved elbows embracing bilaterally the iliac arteries dorsal to the peritoneum.

(5) They are about one inch in length.

(6) Their narrowest point is in the middle of the segment where it bends over the iliac vessels, one-fourth inch.

(7) The iliac segments of the ureter approach the nearest to the ventral abdominal wall, and presents the most favorable location for palpation. In spare subject they may be observed shimmering through the peritoneum on the ventral surfaces of the iliac vessels.

B.—SKELETOPY. (*Relation to Osseous Skeleton.*)

(1) The iliac ureteral segments are located ventral to sacro-iliac joints but separated from them by the vasa iliaca and psoæ muscles.

(2) The iliac segment lies in a vertical plane midway between the os spinosum pubicum and the spina iliaca anterior superior.

C.—SYNTOPY. (*Relation to Adjacent Viscera.*)

The syntopic relations of the iliac ureteral segment is important for diagnosis and surgical intervention. The topography of the iliac segment will be considered in regard to (I) viscera; (II) vessels; (III) nerves; (IV) lymph apparatus.

I.—VISCERAL RELATIONS OF ILIAC SEGMENT (Facies Visceralis Ureteris).

The right iliac ureter is associated ventrally with:

(1) The *distal ilium* which may possess so short a mesentery that the intestinal segment may rest in contact with the ureter. If the distal ilium possess a long mesenteron and its inserted root lies well proximalward the distal ilium may lie on the ureter with two layers of peritoneum intervening—an indirect relation.

(2) *The cecum* in the resting state lies external to the right iliac ureter; distended it covers more or less of it. In young subjects from nondescent it covers less of the ureter. If the cecum be excessively developed, especially if it pass in the lesser pelvis it covers more of it.

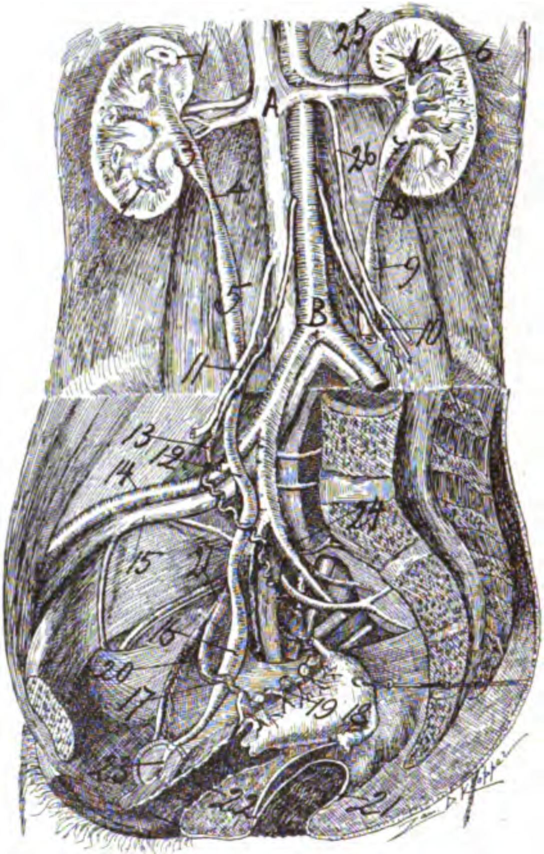

FIGURE II.—TOPOGRAPHY OF URETER AND BLOOD-VESSELS OF LATERAL PELVIC WALL AND ANTERIOR ABDOMINAL WALL.

The cut illustrates the relations of the ureter and the spiral segment of the genital circle. The upper portion of the cut represents a front view, while the under part of the cut represents a side view. It shows the proximal (II), middle (iliac) and distal (17) arterioureteral crossing. The spindle-shape and curves of the ureters are shown. In this drawing a suggestion from Holl is employed. The genital circle and the ureter are shown in their relation, 1, kidney; 3 and 7, ureteral pelvis; 4 and 8, proximal ureteral isthmus; 5 and 9, proximal ureteral spindle; 6 ureteral calices; 10 and 11 proximal arterioureteral crossing; 12, middle arterioureteral crossing; 13, ovarian segment; 14 and 15, external iliac vessels; 16, pelvic ureteral spindle; 17 distal arterioureteral crossing; 18, left oviduct; 19, uterus; 20, pelvic segment of uterine artery divided by the ureter; 22, vagina; 23, ureteral orifical slit opening into bladder; 24 posterior branch of internal iliac; 25, renal vein receiving the ovarian vein 26; 9, 26, 25, 7 ureterovenous triangle.

(3) As to the *appendix*—its relation to the iliac ureter is as variable as its position. If the appendix be long, pass median ward and proximal, it may have intimate relations with the iliac

ureter and become adherent to it in states of inflammation. In autopsies I have frequently noted the intimate association of the iliac ureter and a transversely located appendix. In such cases it is not rare to observe the appendix and also ilium resting on the ureter and fixed in situ by peritoneal adhesions. (Left).—The left iliac ureter has direct and indirect relations with—

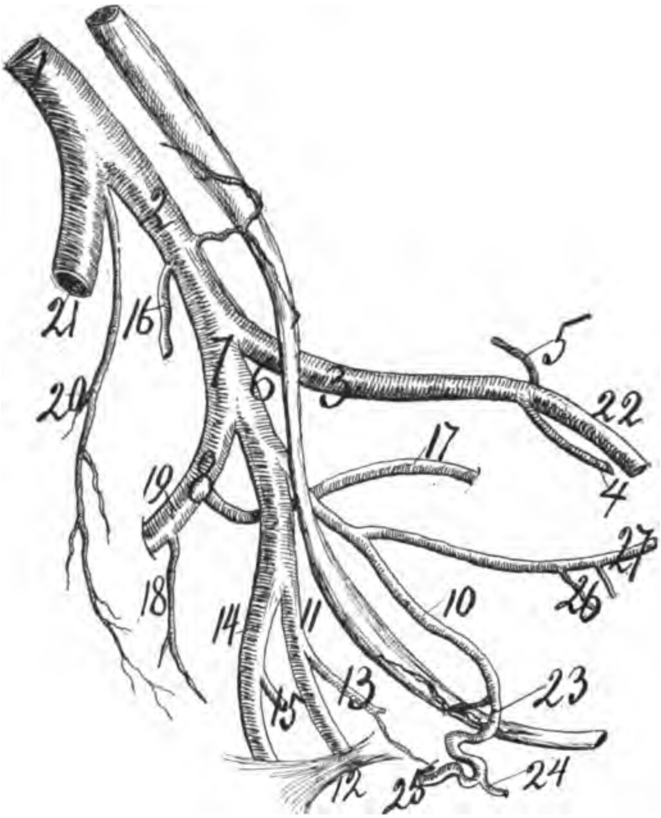

Figure III.—TOPOGRAPHY OF URETER AND ARTERIES ON LEFT PELVIC WALL

Note the topography of the ureter (left) with the internal iliac artery and its branches; 2, common iliac; 3, external iliac; 4, obturator; 5, circumflex iliac; 6, bifurcation of common iliac with its relation to the ureter; 7, trunk of internal iliac; 8, superior gluteal or origin of obturator, 17; 10, uterine; 11, internal pudic; 12, internal pudic; 13, vaginal; 15, hemorrhoidal; 14, inferior gluteal; 16, ilio-lumbar opposite the origin of the arteria ureterica (medium); 18, lateral sacral; 17, superior gluteal; 20, middle sacral; 21, right common iliac; 22, external iliac; 23, arterioureteral crossings with arteria ureterica (distal); 24, cervico-vaginal; 25, uterine; 26, superior and inferior vesicles; 27, arteria hypogastrica. Note arterioureteral and cervical loops.

(4) *The Sigmoid Flexure.* If the mesosigmoid be short the sigmoid itself may have intimate direct relations with the ureter. If the mesosigmoid be long the sigmoid may lie on the ureter with two intervening peritoneal layers.

(5) Various loops of enteron, sigmoid, colon may have indirect relations with the iliac ureter changing from day to day. The above description covers the lateral and medial visceral relations of the iliac segment while no visceral ureteral relations exist dorsally.

II.—Vascular Relations of the Iliac Ureter.

(A) *Dorsal.*—The most important vascular relation of the iliac ureter is that of—

The vasa iliaca which course immediately dorsal to the ureter. The ureter reposes on the vasa iliaca which with the psoas separates it from the sacroiliaca joint. The crossing of the vasa iliaca by the ureter is what I term the middle arterioureteral crossing. It has an individual variation and is very variably reported by different anatomic writers.

The general condition of the ureteral crossing is: (a) the ureter crosses the vasa iliaca externa; (b) it crosses iliaca communis; (c) it crosses the vasa iliaca externa and interna; (d) it crosses the iliac arterial bifurcation and lies in its fork. Also the difference in the right and left arterioureteral crossing due to the nearer approach of the left ureter to the middle line and the more leftward position of the aorta may be generally stated as follows: the left ureter crosses the vasa iliaca communis while the right ureter crosses the vasa iliaca externa. This agrees with my observation (see figures). The middle arterioureteral crossing possesses an individual variation. The ureter can be cleaved or deliminated from the vasa iliaca during operation with safety, especially if it be formed ventralward with the peritoneum. The ureter frequently passes distalward applied on the trunk of the common iliac until it arrives at the trunk of the external iliac whence about one-third of an inch distalward from the arterial bifurcation the ureter deviates rapidly medianward in order to regain the hypogastric and pass with it in the lesser pelvis.

When the ureter passes between the external and internal iliacs it lies in contact with the external iliac vein which demands attention in surgery as cicatricial adhesions may occur between ureter and any adjacent organs. The tractus urinarius and tractus genitalis are notorious for allowing infection to pass to adjacent organs on account of absence of a submucosa. Luschka (1865) observes that the ureter at the left crosses the vasa iliaca communis one and one-half centimeters proximal to the bifurcation and at the right the ureter crosses the vasa iliaca externa one and one-half centimeters distal to the bifurcation.

This peculiarity of the two ureters is due to the different situations of the ureter as regards the median plane and also on account of the aorta being located to the left of the median line. The relation of the ureter with the vasa iliaca is direct, nevertheless, it will adhere to the peritoneum when cleavage is produced.

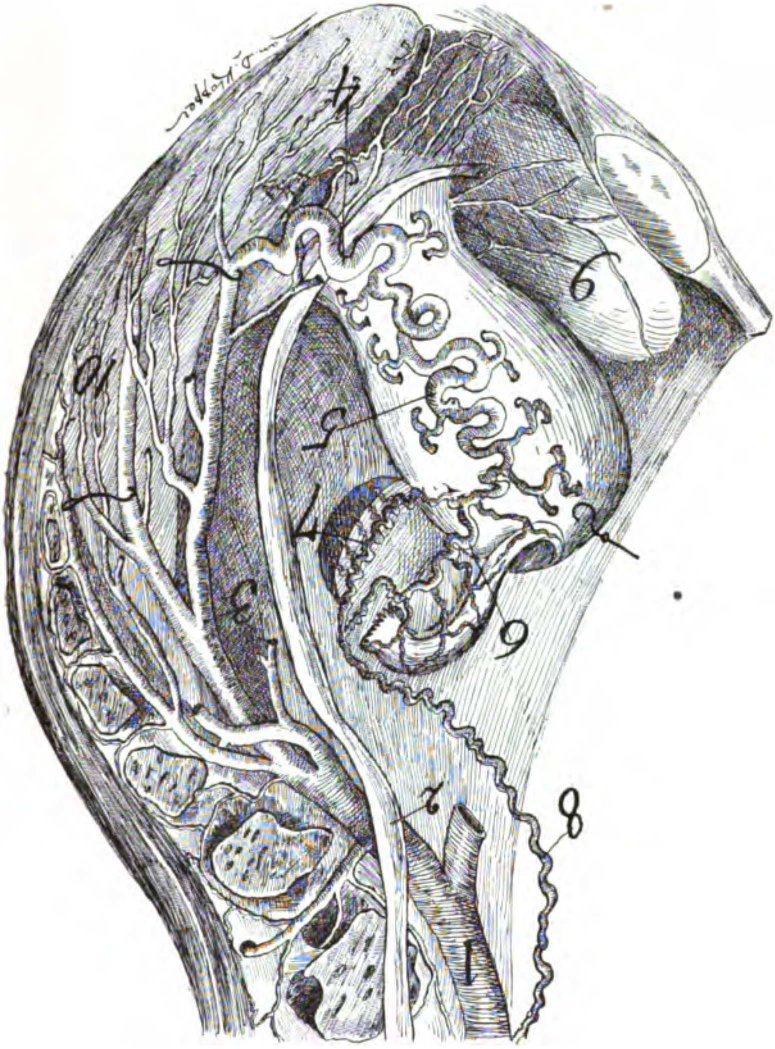

FIGURE IV.—A LATERAL VIEW OF THE ILIAC URETER WITH ITS VASCULAR RELATIONS, BOTH ILIAC AND PELVIC.

Dorsal to the vasa iliaca are found the internal border of the psoas muscle and still more adjacent the lumbosacral nerve, the obturator nerve, with the ascending branch of the ileolumbar artery and a large lymph gland. I have noted this lymph gland become infected producing a distinct mechanical obstruction to the ureter at the middle arterioureteral crossing. The angle made by the ureter of the middle arterioureteral crossing is quite variable. - It is larger in woman than in man. Schwalbe estimates that in man it is usually one hundred thirty to one hundred thirty-five degrees.

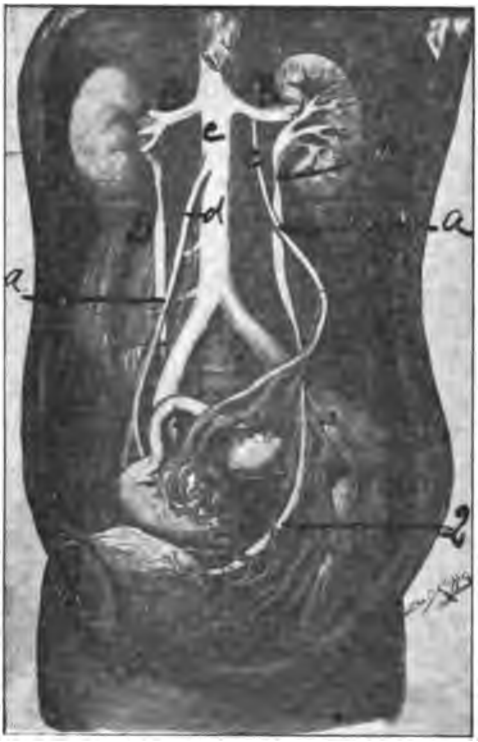

Figure V.—TOPOGRAPHY OF URETERS TO VEINS.

Illustrating the relation of the ureters to veins. 1 is where the left ovarian vein crosses the ureter; 2, where the right ovarian vein crosses the ureter. 1 and 2 stand at the apex of the uretero-venous triangles or the triangles of the author. 3, origin of left and 4, origin of right ovarian veins; 5, uterus; 6, bladder; 7 is the pelvic segment of the ureter passing through the great venous plexuses. The left ureter is typically represented in its venous crossings.

(2) *The arteria ureterica media* arises from the vasa iliaca communis (interna or externa) and supplies the iliac segment of the ureter. As it arises directly from the arteria abdominalis it is a constant artery regardless of functions except that of senescence, while the arteria ureterica (proximal and distal) arises from the uteroovarian, is not only effected with age relations, but with the functional relations of the tractus genitalis

as pubertas, menstruation, gestation, puerperium and climacterium.

(B) *External.* — The ovarian segment of the uteroovarian artery lies external to the iliac segment of the ureter. The vasa ovarica in general lie in contact with the ureter, within one-half inch of it.

(C) *Internal* (Left).—Internal to the ureter on the left side is the vasa hemorrhoidalis superior. This vessel may be in contact with the ureter or at considerable distance internal to it. (Right).—In many cases the right ureter lies internally in contact with the vena cava, which separate it from the ventral column.

(D) *Ventral* (Left).—On the left side the ventral surface of the iliac ureter is in a variable relation with the arteria sigmoidea and its anastomosing branch with the arteria hemorrhoidalis superior. However, this relation is liable to be indirect, that is, two layers of peritoneum will likely lie between the arterial branches and the ureter. The arteria sigmoidea usually crosses the ureter proximal to the iliac segment, that is, in the lumbar ureter. (Right).—On the right the ventral surface of the ureter has a variable direct or more usually indirect relation with the terminal anastomotic branches of the vasa mesenterica superior. The vessels may lie in contact with the ureter or be separated from them by two layers of peritoneum. They are easily cleavable ventralward and adhere to the peritoneum or rather the mesenteron.

III.—RELATION OF THE ILIAC URETERAL SEGMENT TO NERVES.

The iliac ureteral segment has more or less relations with (a) the fourth lumbar; (b) with the fifth lumbar; (c) with the genitocrural; and (d) with the obturator.

IV.—THE RELATION OF THE ILIAC SEGMENT TO THE LYMPH APPARATUS.

(A) *The Ventral* visceral relations of the iliac segments are with the *peritoneum* (facies peritonéi ureteris). In spare subjects one can note it shimmering through the peritoneum as a white band. It is connected to the peritoneum by strong fibrous bands which will make it cling to the peritoneum when stripped from the dorsal wall. It is more intimately bound to the peritoneum than the iliac vessels. The curved condition of the ureter on the iliac vessels and its intimate adhesions to the peritoneum practically limits its mobility. The relations of the iliac ureteral segments with the peritoneum differ on each side. (Left).—At the left the peritoneum constitutes the mesosigmoidea which crosses the iliac vessels at the same time with the ureter. The mesosigmoid contains the fossa intersigmoidea which passes along the arteria iliaca communis for a variable distance, sometimes as far as the bifurcation of the vessel. The floor of this fossa is formed by the parietal peritoneum under which may be seen the arteria iliaca communis and the ureter which crosses the vessels. The left ureter is situated dorsal to the dorsal wall of this fossa. The ventral wall of the fossa is constituted by the double blades of the mesosigmoidea, hence at this level it results that the ureter is covered by three layers of peritoneum. The greater, distal, orifice of the fossa intersigmoidea looks distalward and lateralward and is located slightly medianward from the ureter, yet sometimes the ureter

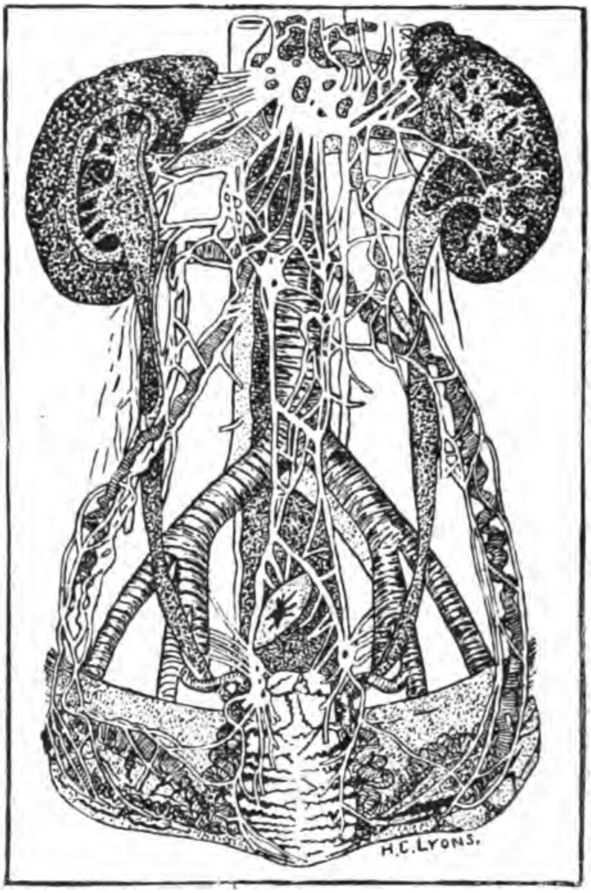

FIGURE VI.—ILLUSTRATING THE ILIAC URETER IN ITS MIDDLE ARTERIOURETERAL CROSSINGS.

The sympathetic nerve accompanies the uteroovarian vascular circle or circle of Author.

appears to escape from the mouth of the fossa intersigmoidea. At the mouth of the fossa the ureter is covered by the origin of the arteries which enclose the fossa, that is, at the right of the ureter the origin of the arteria superior hemorrhoidalis and the arteria sigmoidea dextra and proximalward the arteria sigmoidea media. The arteria hemorrhoidalis superior immediately abandons the ureter for the median line, and the arteria sigmoidea sinistra abandons the ureter lateralward while the arteria sigmoidea dextra descends along the ureter and crosses it at the orifice of the fossa intersigmoidea. (Right).—At the right immediately proximal to the vasa iliaca the ureter is crossed obliquely by the distal part of the root of the mesenteron-radix mesenterica. The vessels are frequently comprised between the blades of the mesenteron. In consequence of the shortness of the distal mesenteron the ilium is applied almost directly to the ureter.

In surgical exploration of the iliac segment of the ureter the peritoneum and ureter should be left adherent to each other and moved about as one organ.

At the middle arterioureteral crossing certain lymph glands exist closely adjacent to the iliac ureter. Owing to the trauma of the rhythm of the arteria iliaca on the iliac segment of the ureter during times when pathogenic bacteria exist in the ureter infection passes through the ureteral wall penetrating the closely adjacent glands. I have noted such glands enlarge and sharply kink the ureter so severely that it became dilated proximal to the gland.

D.—IDIOTOPY. (*The Relation of the Component Segments.*)

The iliac segments may be divided into three, namely: proximal, middle (middle ureteral isthmus) and distal. The proximal segment on the right is the short blunt end of the lumbar spindle; on the left it is the more elongated ilium lumbar spindle.

The distal segment is the proximal end of the pelvic spindle.

The middle segment the narrowest is the significant one. It is the middle ureteral isthmus where the ureter kinks over the vasa iliaca. It is very variable according to my x-rays and parafin filled ureters. It may be one-fourth of an inch in diameter. It may present a small or large angle. It may embrace the vasa iliaca so firmly that its arch corresponds to the vessels. Its lumen may present a flat or tubular form. It could obstruct calculi.

JOYS AND SORROWS OF AN X-RAY WORKER.*

BY HENRY HULST, A. M., M. D., GRAND RAPIDS, MICHIGAN.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

THE *x*-ray has not yet assumed the importance among physicians and surgeons that it deserves. Those not accustomed to its daily use are likely to limit its usefulness to the detection of foreign bodies. Surgeons are beginning to regard it as a good thing, if not as a *sine qua non*, in fractures and dislocations; but that it is as necessary as percussion and auscultation to the general physician is not yet admitted on all sides. That the *x*-ray is destined to become an indispensable adjunct to these means of physical examination I have no doubt. Indeed, I believe that it is in diseases of the lungs and of the heart that it is as promising as an aid to diagnosis as it is in the detection of foreign bodies, of dislocations and of fractures. Since foreign bodies and broken and dislocated bones occur less frequently in the practice of the general practitioner than heart and lung troubles the usefulness of the *x*-ray to him is paramount in examination of the chest.

This I recognize to constitute the richest field for *x*-ray diagnosis. One need but to read the book by WILLIAMS to be convinced of its positive necessity in accurately outlining the shape and size of the heart. This is well nigh impossible even by the most expert percussor in abnormal cases, and yet of more significance than is the determination of symptoms and sounds. By means of the *x*-ray one can easily and accurately determine both shape and size of the heart.

Rather than confine myself this evening to any one part or aspect of the subject, I purpose to relate in few and simple words my experience with *x*-ray work in general. I mean the "Joys and Sorrows of an *X-Ray Worker.*"

To begin with let me say that this is the second time I have had the honor to be invited to Ann Arbor, the city of my alma mater, to address a medical audience. On the former occasion, I gave two conferences and some demonstrations to the medical students of the University on Hypnotism and Suggestion. It *is* the *x*-ray that engages our attention this evening. These subjects, although sufficiently dissimilar in reality, have at least one thing in common. They both appeal to the curiosity and imagination of the people as well as to the intelligent interest of the medical profession. More than that: to the minds of not a few the *x*, or unknown ray, bears some subtle but real and direct relation to that other *x*, or unknown, force or power conveniently named hypnotism. Indeed, I have heard a high-school teacher, a college graduate moreover, say that electricity, hypnotism, the x-ray and the soul are all essentially one and the same thing. If educated people can foster such ideas is it surprising that the ignorant think of the x-ray in the same connection with Christian science, spiritualism, clairvoyance, fortune-telling, *et id genus omne?* Is it much more than a supply of a demand, when an institution is established, as happened recently in the city of my home, exploiting the static machine, ozone, and hot air machines in one breath, with courses of instruction on "the true science of the great breath," and the "elements of healing by the superfine forces, including soul force, mental force, magnetism, light, heat, color, electricity, et cetera?" No doubt "et cetera" may include the x ray also.

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*Read before the ANN ARBOR MEDICAL CLUB.

I remember reading, as a student here, in LAUDER BRUNTON'S "Materia Medica," of one primordial matter and one primordial force. But their pharmacology and therapeutics were not given. And I can very well conceive that remotely, primordially, essentially, at bottom all may be one, *ein grosze Einhertskrauel.* But science does not claim to have as yet reached bottom. According to DU BOIS-REYMOND it never will; and hence its business is not with essences but with phenomena in time and space. Hence, also, the ideal of science is not so much to read, with JACOB BOEME, the mystery of the universe in a kettle of boiling water, to identify and to confuse, as it is to distinguish: hence *bene docet qui bene distingent.* The relation of the x-ray to hypnotism and to the "science of the great breath" may be as profound, but is not much more apparent, than is that of the little flower, man and GOD in Tennyson's pantheistic poem, "Flower in the Crannied Wall,

> I pluck you out of the crannies;
> I hold you here, root and all, in my hand,
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what GOD and man is."

All cows look black—in the dark.

Doubtlessly, the x-ray, impressive and mysterious as it is because of its novelty, is and for some time will be readily diverted from its legitimate use and made to serve the selfish purposes of charlatanry. Just as the so-called psychic influence of a beautiful, bright sparking influence machine is well known to and freely exploited by manufacturers, so also the soft green glow of a Crooke's vacuum tube may be made to serve a similar purpose. Thus I am sure the x-ray can be made to stop a toothache, to move the bowels or stop a diarrhea, to bring on or check the menstrual flow, to cause the transformation if not the entire eradication of the anesthesias, paresthesias, and dysesthesias of hysteria and neurasthenia and to relieve the suffering of the pains of parturition. All of these things and many more I am sure, the *x*-ray can be made to do. The *x*-ray may serve the purpose of the magnet in the hands of BABINSKI, of metals, in the metallotherapy of CHARCOT and DUMONTPALLIER, of the broomstick, in those of BERNHEIM. Moreover, *sub ratione boni*, for the sake of doing good, it is as easy to justify this new and pleasing form of placebo as any other. But, and this is my point, such psychotherapeutic application of the *x*-ray, to make use of a convenient euphuism, however frequently and even surprisingly successful it may prove to be, does not in my opinion advance the science nor dignify the profession of medicine.

Two hundred years ago SPINOZA required of the preacher of his day *pia*—not *vera dogmata.* The Spinozas of modern medicine may welcome the *x*-ray as a pious but useful fraud to cure dysmenorrhea and the gout. To cheat a patient, even be it out of his pain, is cheating nevertheless, and as such it is, to say the least, unpleasant, repugnant to the better nature of an honest man and certainly cannot be one of the real and healthy joys that fall to the share of the Röntgenologist.

Speaking of joys — what joy in the experience of an *x*-ray worker can compare with that over the successful production of his first skiagraph? Especially if it be at the same time his first effort at developing? Remembering it makes the pride of others over their first results seem quite pardonable though pathetic. I still cherish mine and shall try to keep it always. It is a fifteen-minute exposure of my hand. The tube I used I thought was a wonder, and so seemed to be the fourteen-plate thirty-two-inch static machine. The whole process was a delight. I am sorry to say I have never experienced quite such exquisite *x*-ray pleasure since. Dissatisfaction followed increased experience. A twenty-four plate influence machine of the Holtz type took the place of the smaller one. I could see the improvement; but why could I not take in one second a beautiful heart picture such as I had seen from Germany? Owing to the articles by MONELL in the *Medical Record* and other publications advocating the static machine as superior to everything else for *x*-ray work, although somewhat doubting the perfect wisdom of it I discarded the second twenty-four plate machine for one of forty plates. It certainly looked enormous. I had to build a special foundation for it under the floor consisting of nine 6 x 8 beams. Being shaped like a double truncated cone it was not altogether unlike one of the huge vats in Auerbach's Keller, and as full of promise. And, it is true, for fluoroscopy I still respect it very highly. I made some decent pictures of extremities too; even some pelves turned out quite well. Chests were less satisfactory. The finer detail such as I aimed at was lacking in most of the pictures I succeeded in making by means of the static machine as a source of electrical energy.

I now determined to get an induction coil. Although I had been advised to buy a coil not larger than one giving a twelve-inch fat spark, my past experience with inadequacies induced me to select the Queen eighteen-inch coil with adjustable condenser and independent vibrator. Though rated eighteen inches, mine is capable of giving a fat twenty-inch spark with hairs on it — and a flame when the gap is shortened, even with the mechanical interrupter and a ten-cell storage battery. In order to be easy on the battery I had a generator constructed to be run by the one-horse power motor used in connection with my large static machine. It has a capacity of twenty volts, fifteen amperes, and although less strong than the accumulator it suffices for the production of powerful as well as very feeble discharges by the coil. For the Schiff and Freund method of *x*-ray therapeutics and for time exposures both do very well and are flexible as concerns range of secondary discharge. I made several Caldwell and Wehnelt interrupters. The former I have found more economical than the latter. For therapeutic work I prefer it to the Wehnelt, but more generally use the battery or dynamo. For rapid work, however, I have nothing so far to equal the Wehnelt. It is easily managed and with the direct current the platinum wears off but slowly. The alternating current wears out the platinum very much quicker. No doubt a mercury interrupter belongs to the idea of a completely equipped *x*-ray laboratory. Personally I have had no experience with it as yet.

The above outfit has enabled me to approach nearer to what I want to do — instantaneous skiagraphy of all parts of the human body. My coil has never given me any trouble. I have used it and abused it and it is just as good as ever. I like it so well that I also procured a fifteen-inch portable one which I keep in the laboratory of Butterworth Hospital when not used elsewhere.

One does not like to speak of sorrows. What Goethe said of doubts applies to sorrows also: "Do not tell me of your doubts.

I have enough of my own. Tell me of your convictions." Nature seems capricious to the savage mind; tubes do to the x-ray worker. He rests, pets, punishes, smashes tubes as the fetichist his idols. He learns to know them all by name, their temper and their capabilities. He has a number of them—the more the better. He has trained tubes, trick tubes, high-spirited, high-bred tubes as well as gentle steady tubes. Soft tubes are highly valued if not too soft, but will get hard. A flashy tube is worse than a hysterical woman, it is incurably useless. During all the time that I depended upon the influence machine as a source of electrical energy I broke but one tube. The coil I use is much harder on them. In one week, while experimenting with momentary exposures requiring the full power of the inductor I crippled one hundred dollars worth of powerful tubes. So far as I know no tube has yet been made that will endure such currents for any length of time. Water-cooled tubes are better adapted for continued heavy currents than even very large Gundelach tubes, but even the former will break down about the cathode. I have seen the cathode red hot while the anode could stand still more current.

The beginner may spark tubes; later on, by keeping them low, he no longer does so, but is likely to burn them. The former is due to the tube being too hard, the latter to too much current or too long continued use. Experience will teach one to avoid both.

Without an adequate source of electricity, a suitable tube and a good dry plate the skiagrapher is handicapped in his work. But even then he may fail of his object. The exposed plate must be developed. This part of the work is often left for a professional photographer. A surgeon does not carry the principle of the division of labor to the extent of satisfying himself with doing the cutting and leaving the rest to others. He would not deem it wise to do so. Neither should the skiagrapher be dependent upon another to finish his work. Generally he should do the developing himself. Also it robs the work of a great deal of its pleasure and hinders progress. For development should be based upon exposure. To be sure it takes time. But to the skiagrapher it is time well spent. Contrast and detail, both are wanted. and both, it seems to me, depend upon complementary factors of exposure and development. Over- and underdevelopment, as well as over- and underexposure and a tube too hard or too soft may make or mar the picture. Ordinary developing solutions are too weak and do not keep back the shadow sufficiently. The x-ray does not affect the plate as much as does light; and hence more reducing agent, more alkali, more preserving agent, and more restrainer is required than in ordinary photography. Since using one hundred and thirty grains of hydrochinon and eighty grains of potassium bromid to a pint of developer I procure richer half-tones and shadows. The high lights in *x*-ray work should be pitch black. To train oneself to do the work pays better on the long run than to educate a photographer to do it for one and it certainly adds a great deal to the enjoyment of it all.

The examination and interpretation of the finished negative is the next step in the process. To the physician a contrast picture which is at the same time rich in detail offers no especial difficulty. But even with present apparatus and improved technique it is frequently impossible to obtain such a result. A good examining box may be of considerable advantage and since one needs a stereoscope anyway, the plate and printholders of the latter may be so constructed as to serve as ordinary examining boxes as well. I will pass around a photograph of my combined Wheatstone stereoscope for the examination by transmitted graduated light of simple negatives as well as of stereoscopic prints and plates. Fractures and dislocations should be taken stereoscopically and at various angles whenever possible. To illustrate this permit me to show you some fluoroscopic skiagraphs of normal and fractured elbow-joints. The elbow is exceedingly difficult, not to skiagraph, but to read, even from fine plates taken at right angles to each other, especially in the case of children in whom complete ossification has not yet taken place. But when taken stereoscopically and examined thus considerable advantage is gained. For this reason, this method is the one I always adopt in bone work whenever possible. In chest work, too, it adds materially to the beauty of the result, although its necessity is perhaps less pronounced.

My ideal, as I mentioned before, is that of momentary if not instantaneous skiagraphy. As the beautiful work by H. V. ZIEMSSEN and RIEDER in their atlas—"Die Röntgographie"—proves, *moment-aufnahme* are the best for sharp outline of heart and diaphragm, and, detail of soft tissues. Much of the blurring due to the secondary rays generated by the object itself is thus prevented. A diaphragm may be used for the same purpose, and one or two tungstate of calcium intensifying screens assist materially. Permit me to show you a hip-joint of a three hundred twenty-five pound woman taken in this manner in two minutes; another without the screen in four minutes. Also let me show you some negatives illustrating some of the advantages of short exposure for securing detail. Not only ordinary photography but skiagraphy as well has its progress marked by the shorter time it takes to properly expose the plate.

I have not the time to speak of skiagraphic localization, nor of the failures and successes of x-ray therapy. Besides, I am not yet prepared to say much on the latter subject. But I should like to show you a very simple and rapid method of localization for the less fine kind of work, by means of the fluoroscope and an instrument I had constructed in imitation of Monell's one minute localizer.

Speaking of the joys of an x-ray worker, it will not do to omit mention of the pleasure ot receiving and studying such journals as the *Annals of Skiagraphy* and the *Fortschritte of dem Gebiete der Rontgensaphlen.* Not the least of the joys of the skiagrapher's lot is the friendships he forms with his fellowworkers, by whom he is stimulated, with whom he compares results, from whom he receives and to whom he gives equal pleasure. Such is my friendship with my honored friend, Doctor A. W. Crane, of Kalamazoo, who was treading the way of the coil when I was still plodding that of the static machine, and also that with Mr. E. E. Werner, formerly of Chicago, now of Dallas, Texas, with whom I have worked at short exposures in skiagraphy. Such also, gentlemen, is the present occasion, for which I thank you, as well as for your kind attention in listening to this paper.

THE THERAPEUTIC VALUE OF ECHINACEA IN SEPTIC CONDITIONS.*

By FRANK D. WALSH, M. D., Loyalton, California.
SURGEON TO THE LUMBERMEN'S HOSPITAL.

[PUBLISHED IN The Physician and Surgeon EXCLUSIVELY]

Echinacea angustifolia was introduced to the medical profession by Doctor John King, an eclectic physician. In septic conditions the employment of this drug is an important adjunct to any surgical treatment indicated. The fresh root scraped and administered internally and applied externally is the treatment in vogue among the Sioux Indians for wounds, snake bites, ulcers, et cetera. The preparations of the drug used by the writer are the normal tincture and the echafolta. The latter is the name given to a purified form of echinacea of a definite strength.

This drug is a valuable remedy for blood depravation, and is actively antagonistic to septic changes. It has been used with marked benefit in malignant carbuncle, abscesses, typhoid fever, slow forms of meningitis, and septicemia. It often relieves nausea, vomiting, pain and the diarrhea which may be present in septic conditions. The pulse is lessened in frequency and the temperature reduced, when above normal. It has relieved the pain of gastric cancer, and is considered a valuable substitute for morphin in many cases.

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*Read before the Sierra County (California) Medical Society.

In the puerperal forms of septicemia special study and observation should be devoted to this drug. In those cases wherein, after a thorough use of the curette and intrauterine douche, the pulse remains rapid and the temperature high, this remedy often gives excellent results.

A few years ago, I was called to see a woman who two days before, had been confined by a midwife. Patient had had a chill a short time before I arrived and appeared to be suffering from severe shock. The nurse on being questioned closely, stated that labor had been normal and the patient seemed to be doing well until after a vaginal douche had been given. She had employed a bulb syringe, an old affair, which had previously been used only for giving enemas. The condition of the patient was serious, but as quickly as arrangements could be made I carefully explored and thoroughly irrigated the uterus under strict antiseptic precautions. Atropia and strychnin, with the use of the cold pack, constituted the treatment. In twelve hours the patient was much worse, and recourse was had to quinin, veratrum viride, and whiskey but without avail. The next morning she was given one pint of decinormal salt solution by hypodermoclysis. There were no signs of pelvic cellulitis or mastitis. The lochia was very scanty. The patient was then placed on ten-drop doses of echafolta every two hours and one-thirtieth of a grain of strychnin every four hours. In twenty-four hours the temperature began to lower, and the patient said she felt much more comfortable. In six days the fever was entirely gone and a rapid recovery followed.

In another case of puerperal sepsis echinacea gave equally good results. The temperature of the patient became normal on the fourth day, but on withdrawing the echinacea the fever returned. On the renewal of the drug it soon subsided again to normal.

Echafolta is also a valuable remedy in the treatment of appendicitis and may be given in all cases with advantage. When given early the patient will be in a much better condition for operation and the tendency to septic infection thereby greatly diminished. In those patients in which abscess has formed I have seen very good effect follow from leaving a drachm of echafolta (to four drachms of sterile water) in the cavity after evacuation.

In the treatment of two serious cases of carbuncle, echinacea proved very effective, being given internally and applied locally in fifty per cent solution.

Gangrene of the lung, following gunshot wounds, et cetera is a condition calling for the free use of echafolta. A patient, under my care some months ago, suffering from gangrene of the right lung did nicely under the free administration of echafolta, after surviving two serious surgical operations.

There are many diseases in which echinacea will prove valuable, and these few notes are offered in the hope that other physicians may be induced to prescribe the drug and make observations regarding its worth in septic conditions.

TRANSACTIONS.

ANN ARBOR MEDICAL CLUB.

STATED MEETING, NOVEMBER 12, 1902.

THE PRESIDENT, REUBEN PETERSON, M. D., IN THE CHAIR.
REPORTED BY JOHN WILLIAM KEATING, M. D., SECRETARY.

DISCUSSION OF PAPERS.

DOCTOR HENRY HULST, of Grand Rapids, read a paper entitled "Joys and Sorrows of an *X*-Ray Worker." (See page 492).

DOCTOR HERDMAN: I will not attempt at this late hour to occupy very much of your time. It is needless for me to say that you have had an opportunity of witnessing tonight the high-water mark of *x*-ray technique. I say this after having seen some of the best work in the country. WILLIAMS' of Boston, and that of the Chicago workers, and New York workers. Here we have a practitioner working in his own private office and doing work equal to any; and this is a matter for our encouragement, for it points to the fact that any one of us, no matter where we are located, can take advantage of this very valuable method of diagnosis in daily office practice, if we choose. What DOCTOR HULST is doing is being done by men in daily private practice. It is not necessary for me to say that every cross-line in diagnosis that we are able to employ in a case is so much better for the patient and for ourselves. For this chest work, we have been depending upon touch and upon hearing, percussion and auscultation. as methods of physical diagnosis, while by this method we are able to add that sense which is most accurate, that of sight. It is true that it is a shadow picture that we make, but you see that the results obtained in this line show us in detail what has taken place and the pathological changes. This is a wonderful addition to our present methods of diagnosis, and we must recognize that this is only one of the refinements given us by *x*-ray work. When we go into the field of surgery, when we go into the field of any specialty, it can be used to the same degree of perfection.

The gentleman, who has been before us tonight is, however, engaged in dealing with this matter from a very different point of view than myself. I have very little knowledge from personal experience with the kind of work he is doing. It is not my business to make diagnoses of lung diseases. My work has been in the laboratory in teaching beginners. I have had some appreciation of what this work would mean to one in general practice, and I have endeavored to teach our students in the laboratory so that by the time they have reached their senior year they would be able to do this work, and to know what is absolutely required in handling electrical apparatus to do this work satisfactorily. The essayist has had to acquire that knowledge. He has to be familiar with the action of the static machine and the coil in all its details in order to do such work as this. That instruction in the laboratory we have attempted to give. Our students generate *x*-rays by various methods. They have seen the contrast between the results of these various forms of apparatus. Then they have gone on and taken pictures. Our work has not taken up the refinements of diagnosis, but rather the differentiation of different methods. This pile of pictures that I have brought over from the laboratory shows the contrasts and differentiations that are produced by the several methods and forms of apparatus employed. All of this work has been done in the laboratory in making negatives and developing them. Our plan of instruction is so arranged that each one of our graduates will be prepared to go out and do this work. In other words, they will have the fundamental knowledge necessary to do this work.

The necessity of experience in the interpretation of pictures after you have made them was most excellently demonstrated by one picture presented this evening. In that picture, to which the essayist called our attention, certain little spots in the region of the kidney which one would have said were undoubtedly calculi in the kidney, were shown by the stereopticon method of representation to be in the cartilages of the ribs. This teaches us a lesson which we should not forget. Now, with other renal symptoms in connection with the appearance of this first picture associated with a neuritis in the ilio-hypogastric nerve and perhaps a little irritation of the bladder, would make it almost positive to a surgeon that he was dealing with renal calculus, and yet this further refinement of the *x*-ray method clears up the diagnosis, showing us how easy it is to be mistaken and forcing us to adopt methods of investigation that are seen to give such good results. The stereopticon negative has been properly lauded all over the world, and it has been shown tonight how much it brings out clearly and serves to interpret by perspective what was flat surface in the ordinary negative.

The essayist referred to the fact that the *x*-ray worker would very largely improve his capability by being the developer of his own pictures. I can very positively endorse that statement by some experiences we have had in the laboratory. Previously to MR. WILLEY'S doing this work, we had no one who could do it, and I was compelled to take the plates to some photographer in town, and even with all my directions and precautions, I failed to get what I wanted, although I knew the negative contained it. The addition of a dark room and facilities for development has resulted in a great increase in the value of our work and a great increase in the degree of satisfaction. Moreover, the students get the additional knowledge of what methods of developing will best perfect each class of pictures.

Work in obtaining detail is, as you have seen from the last illustration of DOCTOR HULST, what we should aim at, for it is at the very best, simply a differentiation in shadow that gives us the accurate presentation. Now that can be done sometimes by one form of exposure better than by another. As DOCTOR HULST says, it is usually done best by soft tubes. At the same time, it requires for detail work very large tubes. With these, pelvic work, thoracic work and abdominal work can be satisfactorily done by any one after he has gained sufficient experience.

ORIGINAL ABSTRACTS.

MEDICINE.

BY JAMES RAE ARNEILL, A. B., M. D., ANN ARBOR, MICHIGAN.
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AND
DAVID MURRAY COWIE, M. D., ANN ARBOR, MICHIGAN.
FIRST ASSISTANT IN MEDICINE IN THE UNIVERSITY OF MICHIGAN.

A Comparative Study of the Value of Methylene Blue and Quinin in the Treatment of Malarial Fever.—Moore and Allison (*Medical News*, December 6, 1902). This is an exceptionally interesting and instructive article, because of the fact that there is absolutely no doubt about the correctness of the diagnosis of the cases treated. The diagnoses were based entirely upon the microscopical findings and the treatment was not begun until the parasites were found in the blood. The cases were subsequently followed with daily blood examinations. They were kept on the form of treatment adopted until the parasites disappeared entirely or until there was evidence that the drug had failed. Twenty cases were studied in this way, ten with each drug. The dosage in each series of cases was kept as uniform as possible. Full doses of each drug were used, fifteen to forty grains of quinin were given each day, and twenty grains of methylene blue divided into four doses.

The writers emphasize the fact that pure medicinal methylene blue must be used, not methyl blue, the dye. Methylene blue is supposed to be a parasiticide and antiperiodic. Its power to stain the malarial parasite is said to have led to its use as an antiperiodic.

Analyses of Cases.—Of the ten cases put on methylene blue, eight of these were estivo-autumnal, and two of them were double tertian. The average duration of sickness was twenty-nine days. Sixty per cent of the cases were cured with methylene blue. One case was probably a spontaneous cure, and in three others the blue failed entirely. The sixty per cent of cases cured required on an average six and one-half days' treatment. The cases treated with quinin were cured in an average of five and eight-tenths days, and there were a hundred per cent of cures. In addition to this, the cases upon which methylene blue failed were cured by quinine.

Conclusions:

(1) Methylene blue will destroy malarial parasites in many cases, but is less certain than quinin.

(2) Methylene blue is probably most valuable in chronic cases, but has no advantage over quinin.

(3) The effects of methylene blue are ordinarily more unpleasant than quinin.

(4) It is useful in cases that cannot take quinin on account of some idiosyncrasy to it. Its use in cases of pregnancy is undetermined.

(5) It is probably valuable in treating hematuric and hemoglobinuric fevers on account of its diuretic action; this has yet to be determined. We have had no chance to test its use in such cases.

(6) We believe that quinin is quicker and much more certain, and would rely upon it rather than upon methylene blue. J. R. A.

Anemia Produced by Repeated Injections of Cultures of a Colon Bacillus of Low Virulence.—Charlton (*Journal of Medical Research*, November, 1902) reports observations he has made on chronic infection and subinfection by the colon bacillus and on the anemia produced by the repeated injections of cultures of a colon bacillus of low virulence. After giving a brief history of the anemias produced by certain intestinal parasites such as the uncinaria duodenalis, and the bothriocephalus latus, and the views entertained as to the manner in which such anemias are induced by these parasites, the author makes the following statement:

"The task which I set myself has been to obtain cultures of a typical colon bacillus from the healthy intestine and to study the effects of (1) the repeated injection of the small amounts of a pure culture of the same into the organism; (2) the repeated injection of the fluid cultures with the dead bacilli; and (3) the effects produced by the toxins; thus to determine if anemia be producible, and if so, of what order."

The culture selected for the experiments was that species known as bacillus communior of Durham, which is now known to be the most common form of the colon group.

Method of Inoculation.—Healthy adult rabbits were selected and divided into two groups. Group I were inoculated intraperitoneally with periodic small doses of a twenty-four-hour broth culture. Group II received smaller doses of a similar culture injected directly into the circulating blood through the ear vein. Control rabbits were kept.

The animals thus treated reacted in a characteristic manner, definite symptoms were produced and after the stopping of the injections the animals showed marked signs of returning to their normal condition. If the injections were again instituted a relapse occurred with more marked symptoms than before. The author says "It may therefore be laid down that 'subinfection' of rabbits with bacillus coli leads to the following results:"

(1) *A marked and progressive anemia* having the following characters: Reduction in the number of red corpuscles as low as 1,500,000 or seventy-four per cent; poikilocytosis, which shows itself when the erythrocytes have sunk to 3,000,000; nucleated red corpuscles, which are more marked in the relapse; reduction of hemaglobin, which is progressive with the decline of the red corpuscles; few if any alterations in the leucocytes. There was no loss of appetite. The animals receiving intravenous injections underwent progressive emaciation and loss of weight.

(2) *Progressive Effects upon the Nervous System.*—All the animals developed a condition of progressive ascending paresis, giving place to paralysis.

(3) *Other Systems* –showed little change.

The author draws the following conclusions: "From the above epitome of the conditions found it will be observed that in these experiments there has been developed a very remarkable state of advanced anemia. That anemia is not quite comparable with any of the classic forms seen in man. In some respects it is strikingly like the condition of pernicious anemia, namely, in the very great diminution of the number of erythrocytes, the marked poikilocytosis, and the appearance of nucleated red corpuscles.

"As far as I know at the present time no other observer has produced these striking conditions. But, on the other hand, it differs from pernicious anemia in the fall of the amount of hemoglobin being parallel with the decrease of the red corpuscles; in the absence of a Quincke's siderosis, or increased presence of iron in the livers; in the absence of any clear evidence of inflammatory or other disturbances of the digestive tract, and of well-marked changes in the bone marrow.

"Whether employment of other strains of the colon bacillus would lead to a picture more clearly resembling pernicious anemia, or whether again the employment of bacterial toxins rather than the pure attenuated cultures will give different results, must be left for future studies. In the meantime I am inclined to think that the observations here recorded are of a certain value, as indicating one method, namely, that of 'subinfection by the ordinary bacterium of the digestive tract; whereby a very definite grade of anemia may be produced.'" D. M. C.

SURGERY.

BY HENRY O. WALKER, M. D., DETROIT, MICHIGAN.
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AND
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Perforation of the Bowel in Typhoid Fever.—Doctor Armstrong, of Montreal, read a paper before the Chicago Surgical Society, in which he said (*Annals of Surgery*, November, 1902) perforation is noted in two to five per cent of all cases, more frequently found in adults than children. While there is no particular time in the course of the disease when it may take place, most are seen in the second or third week. The part most frequently perforated is the last eighteen inches of the ileum. Surgical interference while not followed by brilliant results is worthy of high consideration. Death may follow operation from typhoid toxemia or infection of the peritoneum.

He reports nine hundred thirty-two patients (typhoid) treated at the Montreal General Hospital. Thirty-three were operated upon and five of these recovered. Twice as many females as males recover. "Does the thoracic type of respiration in women result in a more limited diffusion of the escaped intestinal matter?" The cause of perforation is not definitely known. Moving about in the discharge of one's duties after the onset of the disease seems to be an important factor in its production. The diagnosis of perforation is of great importance. While everyone is familiar with the symptoms the onset may be obscure. The initial symptom is pain referred to the umbilicus, followed by tenderness and fixing of the abdominal muscles. The first pain may be mistaken for colic. Pain with localized tenderness and rigidity should be sufficient evidence to warrant an exploration. Another prominent sign is the change of respiration from abdominal to thoracic. The temperature may rise or fall, and at the same time there may be nausea or vomiting. A pin-point perforation near the cecum may manifest itself so slightly as to be overlooked except at postmortem. The sign is persistent slight pain and tenderness at the point of perforation.

Leucocytosis is of little value except as associated with other symptoms. When perforation is not found at the time of operation look to the mesenteric glands, appendix or sigmoid flexure for cause of symptoms. When perforation is found, use every means to localize infection. Arrest peristalsis by rest, ice to abdomen, and withhold all food.

The time to operate is in the first twelve hours. The great danger is shock, which should be anticipated. The period of rest following perforation "is the surgeon's opportunity." Early exploration adds little to the danger if no perforation exists and saves some who might be lost by delay. The lateral incision may be used in early localized cases. When infection is in the pelvis or general the median incision should be used. As death may come from perforations subsequent to operation, careful inspection and stitching of all suspected points will be in order. The abdomen should be filled with saline solution and a rubber tube inserted into the pelvis with the exposed end closed.

Ether anesthesia is to be preferred, but local anesthesia may be used in cases where general anesthesia would be very dangerous.

In the same journal, Doctor Willy Meyer, of New York, calls attention to the implantation of silver filigree for the closure of large hernial apertures. The use of this method was first published by Witzel, of Bonn, and shortly after Göpel, of Leipzig, who was working independently along the same line, published his work. The tissues may be separated as in ordinary hernia operations. The wire gauze should be cut large enough to extend well outside of the opening to be closed. The peritoneum and deep structures are first brought partially together with silver wire stitches; the wire gauze is then laid over the opening and sutured in place. The skin fascias and remaining tissues are sutured over it. When healing is complete, tissues have grown through the openings in the wire gauze making so firm a support that bandage or abdominal pad may be discarded. The method promises to be of great value wherever the tissues are in need of support. C. G. D.

GYNECOLOGY.

BY REUBEN PETERSON, A. B., M. D., ANN ARBOR, MICHIGAN.
PROFESSOR OF GYNECOLOGY AND OBSTETRICS IN THE UNIVERSITY OF MICHIGAN.

The Mimicry of Pregnancy by Fibroid and Ovarian Tumors.—Howard A. Kelly contributes an article to the November number of *American Gynecology* on this subject. Kelly claims that it is a matter of common observation that although cautious observers of an abdominal growth seek to ascertain whether the tumor is not purely physiological or complicated by pregnancy, large tumors are not infrequently mistaken for advanced pregnancy.

Kelly recognizes four classes of cases in which errors of diagnoses may occur:

(a) Those in which there is a pregnancy and no tumor.
(b) Those in which pregnancy is complicated by a tumor.
(c) Those in which there is a tumor but no pregnancy.
(d) Those where there are neither pregnancy nor tumor.

As an example under class (c) he relates a case from his own practice where he opened the abdomen of a maid servant forty years of age with the expectation of removing a fibroid uterus. Upon palpation the uterus was so soft and so uniformly distended that it was thought to be a five months pregnancy and the abdomen was closed. The second diagnosis was not verified by the lapse of time and the woman was later operated on for this growth.

In still another case a careful examination under ether anesthesia showed what appeared to be a distinct tumor on the right uterine cornu and a pedicle apparently above two centimeters in length connecting the tumor with a firm, hard, slightly enlarged uterine body to the left. Abdominal section revealed a large, soft, boggy right uterine cornu of an otherwise normal uterus with a thin translucent spot four centimeters in diameter near the fundus. The abdomen was closed and was followed by an abortion.

In some cases on account of simulation of parts of the tumor to portions of a child's body, it is easy to mistake the enlargement for advanced pregnancy. Especially true is this when the tumor is associated with ascites, as here, if the mass has a long pedicle, external ballottements can be elicited.

Kelly reports in some detail a number of cases from his own practice where there was gradual increase in the size of the abdomen; a history of nausea in the early months; sensations as of fetal movements; a rounded body size of fetal head situated at the superior strait; changes in the breasts and discoloration of the vagina. By other signs or their absence combined with a careful physical examination he was able to exclude pregnancy and decide in favor of an abdominal growth. Operation later showed the correctness of his diagnosis.

In order to make a diagnosis in a case presenting these puzzling signs it is necessary to observe whether the fetal heart be present or absent. The pulsations in the tumor will not be mistaken for a fetus if the observer is careful to notice that they are synchronous with the radial pulse.

There is apt to be an omission of one or more of the usual signs of pregnancy, as, for example, cessation of menstruation. Kelly's experience is that it is extremely rare for menstruation to continue throughout pregnancy, and in the presence of menstruation with an unaltered hard cervix the presumption is strong against pregnancy. Ascites should be carefully looked for, areas of dullness being outlined with the woman in the erect, dorsal and lateral positions. Rectoabdominal examination under anesthesia is of great value in doubtful cases. Factors aiding the diagnosis are the age of the patient, duration of the growth, and the presence of an intact hymen in a single woman.

Removal of the Urinary Bladder for Cancer—A. Lapthorn Smith (*American Gynecology*, October, 1902) reports a case of removal of the urinary bladder affected with carcinoma and suturing of the ureters into the vagina. The patient bore the operation well, although the duration was a little over two hours. She died, however, on the sixth day, having vomited large quantities of dark material for two days before her death The urine came away from a tube in the vagina almost normal in color and quantity without her feeling it. Smith is of the opinion that if the patient had been younger and the operation had been performed earlier recovery would have ensued. (The question of the justifiability of removal of the urinary bladder when affected by cancer is still sub judice. The reviewer's experiments contraindicate the insertion of the severed ureter into the intestine.)

OBSTETRICS.

BY THOMAS STONE BURR, A. B., M. D., ANN ARBOR, MICHIGAN.
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Secondary Puerperal Hemorrhage.—Atlee (*American Jounal of Obstetrics*, October, 1902) cites two cases of secondary puerperal hemorrhage, one of which resulted fatally. In the first case hemorrhage appeared four days after delivery. The patient was seen by three physicians during the five days following the onset of hemorrhage. Nothing was done to stop the flow. The patient was told that there was nothing in the uterus. Atlee saw the patient on the fifth day. She was greatly exsanguinated. Pulse 160. Uterine massage resulted in the expulsion of a mass of clots, and a gush of blood from the vagina. The uterus was emptied of clots by the finger, and placental remains were brought away. The uterus promptly contracted. Ergot was administered and a binder applied. The patient was given brandy and water, with a diet of beef juice, soft egg, milk and broth.

Hot vaginal douches were ordered and a tonic of iron, quinin and strychnin. The patient left her bed earlier than directed, and developed a phlebitis, which yielded to elevation, rest and bandaging. Recovery was complete one month after confinement.

In the second case cited, there was a possibility that a small fragment of membrane was retained. The uterus contracted firmly after delivery of the placenta. The only lochial discharge was a thin colorless fluid. A firm coagulum occupied the os. On the fifth day the coagulum began to disintegrate, and a somewhat foul discharge resulted. The uterus was washed out with a carbolized solution. A chill followed, but the uterus remained firm. Ergot was given. Three hours later hemorrhage began. The uterus relaxed completely and the patient became pulseless and died before aid could be summoned.

Atlee calls attention to the fact that such hemorrhages are far more common than the text-books imply. Pavin cites as causes of such hemorrhage, (1) alteration of the blood; (2) psychic causes; (3) causes which prevent uterine retraction, for example, uterine inertia, uterine fibroids, and uterine adhesions; and causes which produce uterine congestion. Atlee thinks hemorrhage due to fibroids more likely to be primary than secondary. He considers that secondary hemorrhage is likely to result from the retention in the uterus of placental fragments or rarely a placenta succenturiata or the retention of clots. Too sudden assumption of the erect or sitting posture, especially if uterine contraction is weak, may cause sudden filling of the uterine vessels, and wash out the clots from the sinuses. Crowding the uterus backward by too firm bandaging may cause secondary hemorrhage. Subinvolution of the uterus due to a mild endometritis may cause loss of blood when the patient begins to get about upon her feet. Fibrinous and placental polypi may be causes of puerperal hemorrhage. Other causes cited are cysts, distension of the bladder, coughing, and aneurism of the uterine artery.

Treatment.—More careful obstetrics is the best prophylactic. Exploration of the inside of the uterus, and removal of placental fragments. Investigation of the pelvic organs if the cause is not to be found in the uterus. Careful investigation of the bladder and rectum. If the pelvic organs do not offer an explanation, examine for purpuria albuminuria or valvular heart lesions. In any case maintain contraction of the uterus by ergot and application of a binder. Pack the uterus with aseptic gauze if necessary. Intrauterine injections of very hot water, or use of Monsel's solution may be indicated.

Atlee fails to mention the use of normal salt solution, given either subcutaneously or intravenously, or by rectum according to the urgency of the case. No other therapeutic measure will so thoroughly meet the indications arising as a result of hemorrhage. Shock is combatted, and the red cells are supplied a medium in which to circulate. One teaspoonful of salt in a pint of water approximates a normal salt solution. A two per cent solution of gelatin in normal salt will often promote clotting when hemorrhage is due to a blood dyscrasia. This may be given per rectum and pushed to toleration. It must be remembered that the tetanus germ is often found in commercial gelatin, and therefore sterilization must be most thorough.

PEDIATRICS.

BY ARTHUR DAVID HOLMES, M. D., C. M., DETROIT, MICHIGAN.
PROFESSOR OF PEDIATRICS IN THE MICHIGAN COLLEGE OF MEDICINE AND SURGERY.

The Importance of Milk Analysis in Infant Feeding.—A. H. Wentworth (*Boston Medical and Surgical Journal*, July 3. 1902) gives the following summary of the result of his researches:

(1) The general statement that the upper one-fourth of one quart of cow's milk in which cream has risen contains ten per cent of fat, represents the average of a large number of milks. There is too much variation in milks from different cows to enable me to figure modifications of milk on this basis with any degree of accuracy.

(2) The results of the great variation in cow's milk would not be of so much consequence if the percentage of fat in the cream were always low. Too much fat in a modified milk is more likely to cause digestive disturbance than too little.

(3) It is advisable, therefore, to have the percentage of fat in cream determined at least once whenever an infant begins to use modified milk. It is also advisable to have the fat determination repeated at the times of year when the food of the cattle is changed.

(4) It is not advisable to modify milk with a cream in which the percentage of fat is too low (under ten per cent) because if

one obtains a sufficient percentage of fat in the modification the percentage of proteids will be high in many cases.

(5) If the percentage of fat is too low in the upper eight ounces, from one quart of "set milk," it is better to take fewer ounces off the top, determine the percentage of fat in these ounces, and use such a number of ounces of cream as contains twelve per cent or more of fat. If more proteid is required it can be obtained by the addition of lower milk which is almost free from fat.

(6) A safe rule would be to have at least one determination of fat made no matter how many ounces are taken from the top of the "set milk," and afterward continue to take the same number of ounces off at each time.

(7) In order to make a modification of milk in which a high percentage of fat is combined with a low percentage of proteid, it is necessary to use a cream that contains a high percentage of fat. In general it is better to use a cream removed from the milk at home than to use milk bought for this purpose, because the latter is much more likely to be stale and to have undergone changes due to heat and to age.

(8) Within certain limits, accurate percentage modifications of milk are not essential to the well-being of a majority of the babies that are fed on modified milk. Proof of this is afforded by the fact that so many infants do well when fed on modified milk, and yet it has been shown by the results of analysis that these modifications are rarely accurate. Unfortunately it is not always possible to tell beforehand to which class a given case belongs and this is sufficient reason, even if there were no others, for modifying the milk as accurately as possible. A complete analysis of the milk requires too much time and training to make it a practical procedure, except in special cases. The determination of the percentage of fat in the cream used for modification is easily made, requires but a few minutes to do, and enables modifications of milk to be made that are accurate enough for most cases if in addition directions for modifying are carefully given and followed:

(9) The advantage of modifications of milk furnished by establishments is that it is convenient. It relieves the family of all responsibility so far as the preparation of the infant's food is concerned.

Three great objections to the use of commercial modifications of milk are (a) inaccurate modifications, (b) stale milks, (c) expense. (a) The claim is made by those interested in the sale of commercial modifications of milk that the percentages of fat, sugar, proteids are actually determined in each modification. This claim of exactness forms the basis upon which such commercial modifications of milk largely depend for their success. Analyses submitted by the writer shows how little dependence can be placed upon such statements. (b) People who reside beyond the limits of wagon delivery—and most people do for several months in each year—have to use on Sundays and part of Mondays milk that is delivered on Saturdays and of necessity milked on Fridays. It is claimed that no deleterious changes take place in these milks if they are kept cold. A sufficient number of clinical observations have been made to show that such a claim is unwarranted. (c) The cost of modifications of milk made at home is less than twenty-five cents a day. Compare this with the cost of commercial modifications of milk, to which must be added in many cases the cost of transportation.

(10) The technique of fat determination by the Babcock method is simple and easily acquired. The entire outfit, including a centrifugal machine, flasks, pipettes and acid can be purchased for nine dollars. The time required for fat determination by this method is about fifteen minutes.

Empyema in Children.—Cotton (*Boston Medical and Surgical Journal*, Volume CXLVII, Number III) says that empyema in childhood usually follows lobar pneumonia and is due to the pneumococcus. Spontaneous cure is rare, even after tapping. Operation should never be delayed after diagnosis is made. The best form of intervention consists of subperiosteal resection of an inch of the eighth or ninth rib in the posterior axillary line. After evacuation of all pus, fibrin, et cetera, tube-drainage should be employed. Irrigation is not advisable. When failure of the lung to expand appears to prevent complete recovery, some suction apparatus should be employed. The mortality is about one case in seven, and the causes are beyond control. The tendency under proper treatment is to eventual recovery, and any resulting deformity of the chest is temporary and amenable to treatment in most cases, although permanent scoliosis sometimes results.

OPHTHALMOLOGY.

BY WALTER ROBERT PARKER, B. S., M. D., DETROIT, MICHIGAN.
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When to Operate for Ripe Senile Cataract, the Other Eye Possessing Useful Vision.—George F. Keiper of Lafayette, Indiana (*Annals of Ophthalmology*, October, 1902) says: "In order to test the sentiment of the profession concerning the removal of a ripe senile cataract when the other eye possesses useful vision, the writer addressed the following questions to such members of the Section of Ophthalmology of the American Medical Association whose name appeared in the subjoined table:

Question I.—Do you remove ripe senile cataract if the lens of the other eye is clear or if opaque possesses useful vision?

Question II.—After such an operation do patients complain of the difference of refraction between the two eyes?

One hundred and five answers are given and the following conclusions drawn:

The writer desires to urge the removal of the ripe senile cataractous lens, irrespective of the condition of the other one, because from above, if the operation is ultimately successful the advantages gained are—

(1) The patient has a larger field of vision. This is a source of

protection against accident whose cause may originate from the otherwise blind side.

(2) The avoidance of the dangers and difficulties of extraction of an over ripe lens.

(3) Continuous vision, because the other lens is usually affected.

(4) The patient possesses more comfort with sight in both eyes.

(5) The patient's appearance is better.

The objection urged against the removal of the ripe cataractous lens when the other eye possesses useful vision are mainly from the standpoint of the difficulty of correcting satisfactorily the difference of refraction. No attempt should be made to correct the aphakic eye until the vision of the other eye is so seriously impaired as to be almost useless.

THERAPEUTICS.

By DELOS LEONARD PARKER, Ph. B., M. D., Detroit, Michigan.
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The Action of the X-Ray and its Uses in Therapeutics.—Snow (*Journal of Advanced Therapeutics*, November, 1902) says in the treatment of deep-seated tumors the penetrating quality of the rays is of the first importance. Tubes of high vacuum are best whether for deep or for superficial cases. Good effects from *x*-ray depend on the rate and character of the vibration, in connection with the power of this remedy to produce chemical change.

Characteristic effects of *x*-ray upon living tissue from long exposure, or from a series of short ones are: "(1) Induction of impaired nutrition marked by alopecia and atrophy of the cuticle; (2) irritation evidenced by an itching sensation; (3) inflammatory action, marked by tanning dermatitis or deep necrosis, the latter followed by sluggish reaction and retarded restoration; (4) the rays destroy some forms of germ life, either by a specific action (which is doubtful); possibly by stimulation and attenuation from overgrowth; or most probably by rendering the pabulum unsuitable for their existence." Snow believes "(5) that the effect upon normal tissues is first to stimulate normal action; (6) that short exposures induce activity of normal tissue cells, which in some cases, supplant abnormal tissue elements, without showing evidence of disintegration; (7) that longer exposures destroy the abnormal tissue elements of low vitality, but do not seriously effect normal tissues unless the exposures are too prolonged; (8) that abnormal tissue elements thus exposed break down and disappear through the natural channels of absorption or by sloughing; (9) when tumors of considerable extent are rayed, rarely, if ever, over small tumors, a marked reaction occurs, with fever and varying degrees of prostration; and (10) that it causes in the deeper structures, as well as in the skin, contraction of the muscular coats of the arterioles, relieving congestion and the consequent pain, as well as diminishing hemorrhage in some diseased conditions, as cancer and fibroid of the uterus,"

Doctor Snow considers the remedy indicated in keratitis, acne, elephantiasis in its early stages, in removal of superfluous hairs, and in all conditions in which it is desirable to induce atrophy of the cuticle and remove neoplasms. He says the alopecia produced by it is temporary unless the process has been repeated often enough to destroy the hair follicles. "The two forms of lupus, rodent ulcers, epithelioma and superficial sarcoma are invariably cured either by the *x*-ray alone or in conjunction with the brush discharge."

In using the rays to influence the development of malignant growths located within the body, Doctor Snow thinks one should consider the advisability of removing the mass after a short course of treatment by this remedy in order to avoid the danger of autoinfection from the sloughing tissue, which may ensue. By means of this double procedure he thinks many cases considered inoperable from the surgical standpoint may be brought to successful termination.

Other conditions in which the doctor reports satisfactory results from the *x*-ray alone are tic douloureux and bronchial neuritis.

Forty Cases of Typhoid Fever Treated with Benzoyl—Acetyl Peroxide (Acetezone).—Abt and Lockner (*The Therapeutic Gazette*, October, 1902) give an account of their experience with acetezone in treating typhoid fever in the Michael Reese Hospital, Chicago.

Most of the cases reported occurred in children of foreign parentage and came from a district known as the Ghetto. The average age of these patients was eight and three-fourth years, the oldest being fourteen and the youngest two and a half years.

The clinical diagnosis was confirmed in every case by the Widal reaction. Rose spots were detected in twenty-five of the forty cases. The acetezone was administered sometimes in powder, sometimes in capsule, sometimes in solution and in some cases in powder and solution at the same time.

The article is not clear as to the dosage, but an idea on this point may be gained from the routine followed in the case of a boy of ten years, in which the administration of the drug was begun on the third day of the disease. For two days a half grain of acetezone was given every two hours; for the next five days three grains were given hourly. The drug was then stopped as patient was convalescent.

Two of the cases proved fatal, one of which succumbed to pneumonia and edema of the lungs and the other to great pyrexia. Stupor and tympanites were almost entirely absent, while hemorrhage occurred but twice, both times in the same case, which recovered. Fetor of the stool was much diminished.

The average length of time the disease has existed before treatment with acetezone was started, was eight and one-half days, and the average duration of the fever after the treatment with acetezone was begun was thirteen and one-half days including two relapses.

The average duration of the disease from inception to convalescence was, in thirty-six cases, which included two relapses of six days each, twenty-three and six-tenths days.

The writers of the article believe the best form in which to exhibit acetezone is that of an aqueous solution, to which a few drops of orange extract has been added.

HYGIENE.

BY GUY LINCOLN KIEFER, A. B., M. D., DETROIT, MICHIGAN.
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The Etiology of Return Cases of Scarlet Fever.—Doctor C. K. Millard (*British Medical Journal,* August 16). Return cases of scarlet fever are cases which are caused by the carrying home of infection by patients returning from the hospital. They are essentially a hospital phenomenon—analogous cases rarely arise after treatment of scarlet fever at home. The infective influence arising from the return of patients from hospital persists for a much longer time than was at first supposed. If a limit must be set to the length of the interval which may elapse between the return home of a patient and the occurrence of a return case, it should be at least six weeks. The clinical complications of pâtients leaving hospital most frequently associated with the carrying home of infection are discharges from the nasal and aural passages, and unhealthy conditions of the nasal mucous membrane, with or without visible discharge. The fatality of return cases has long been noted to be above the average. It was formerly decreed that if a patient proved to be still infectious after return from hospital prematurely the physician was to blame for infection. In order to avoid this, the period of detention in hospital has been greatly increased, until now it surpasses that of patients sick at home. Yet this plan has not been a success; the number of return cases increasing regardless of the length of the period of detention. There are two theories as to the nature and origin of the infection. The one held by most authorities is that, during his stay in an acute ward, the convalescent patient, in an act of breathing, stores up in the nostril the infective matter discharged from acute cases, which he subsequently expels at home. The author's own view is that there is a retardation of the elimination of infection, caused by the already infection-laden atmosphere. The patient's do not really complete the elimination until after they leave the hospital. In order to prevent the occurrence of such return cases in hospital the following scheme was followed out:

(1) To isolate all cases for a fortnight before discharge in special wards.

(2) To inunct the patients with weak carbolic oil and to wash out the nostrils immediately before transference to the isolation ward.

(3) To bathe them every alternate day, and immediately after the bath to reinunct them.

(4) To wash out the nostrils and ears every day with an antiseptic solution.

(5) The patients are encouraged to spend as much time out of doors as possible.

PATHOLOGY.

By ALDRED SCOTT WARTHIN, Ph. D., M. D., Ann Arbor, Michigan.
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On Thrombi Composed of Agglutinated Red Blood Corpuscles.—Flexner (*Journal of Medical Research*, November, 1902). In the dilated veins in the intestinal submucosa, in the immediate neighborhood of an ulcerated typhoid patch in the ileum, peculiar thrombi were found, in which but few leukocytes were present and but small islands of fibrin. Careful study showed that these consisted of conglutinated masses of red blood cells, altered in form, adhesiveness and staining properties. Every transition was found from normal red corpuscles to the main agglutinated mass in which the corpuscular outline was lost and a higher degree of refraction existed. Similar appearances were found in the intestines and lungs of other cases of typhoid, in a case of bronchopneumonia, carbolic acid poisoning and eclampsia respectively. Experimental investigations showed that similar agglutination thrombi could be produced by injections of ricin, ether and hyaline globulicidal blood serum. Flexner concludes that the agglutination of red corpuscles *intra vitam* is not uncommon in infectious disease in man and animals; and that a special variety of thrombi is produced through this agglutination, which may be denominated agglutinative thrombi. When such thrombi are old, or when the agglutination is compact, they may present appearances to which the name of "hyaline thrombi" has been applied. It is probable that other alterations of the blood than those arising in infectious disease may bring about agglutinative thrombosis, the nature of this alteration being little understood. Poisons which destroy corpuscles rapidly are provocative of agglutinative thrombi. The so-called "fibrin ferment thrombi" are probably nothing else than agglutinative thrombi.

Subinfection by the Colon Bacillus.—Charlton (*Journal of Medical Research*, November, 1902). Experimental investigation showed that "subinfection" of rabbits (repeated injections of small doses of cultures of a nonvirulent form of bacillus coli into the abdominal cavity or intravenously) produced a marked and progressive anemia which in some respects is very like pernicious anemia, namely, in the great diminution in the number of erythrocytes, the marked poikilocytosis, and the appearance of nucleated red cells. On the other hand it differs from pernicious anemia in the fall of the hemoglobin being parallel with the decrease of the red corpuscles, in the absence of a distinct siderosis of the liver, and in the absence of inflammatory or other disturbances of the digestive tract, and of well marked changes in the bone marrow. The other changes produced were a progressive, ascending paresis, giving rise to paralysis with the development of exaggerated reflexes in the earlier period followed by complete loss. Other changes were not marked. No cirrhotic changes were observed. The importance of these observations lies in the possible relationship of "subinfection" with colon bacilli to the occurrence of unexplained anemias in the human being.

Ueber die Experimentelle Erzeugung von Parasitären Myxomyceten—Geschwulsten Vermittelst Impfung von Plasmodiophora Brassica.—Podwyssotzki (*Zeitschrift für Klinische Medicin*, November, 1902). The apparent analogy between the inclusions of carcinoma-cells and the myxomycetes has recently been emphasized by a number of observers, Von Leyden and others. Podwyssotzki introduced portions of the "tumors" of the stalks and roots of cabbages, containing the *plasmodiophora brassica*, into the peritoneal cavity of rabbits. Tumors began to develop on the fifth to eighth day, reaching their greatest size on the twentieth and twenty-fifth day, being about the size of a walnut. The myxomycetic tumors thus formed were of mesodermal origin, of transitory nature, and resembling a perithelial, infectious granuloma. The spores of *plasmodiophora* were taken up by macrophages, exciting the latter to mitotic and amitotic division of the cell-nucleus. Within the cells the parasites may so blend into the structure of the protoplasm that they become scarcely visible. The majority of the spores taken up by the phagocytes are destroyed. A few show signs of proliferation. The author regards it as not improbable that free parasites in the myxameba stage may produce a further infection of the cells of the lymphatic and perivascular spaces. In this case the empty capsules are left in the cells first infected. Dead myxomycetes (*plasmodiophora*) do not give rise to such tumors as the living material produces. It would appear to the unprejudiced reader that Podwyssotzki's results do not give any additional support to the parasitic theory of cancer, but on the contray may be regarded as negative evidence.

EDITORIAL COMMENT.

SAINT JOSEPH'S SANATORIUM.

THE climatic treatment of suitable cases of tuberculosis has become so well established that patients often prescribe it for themselves independently of the physician. It is a fact, however, of which people generally are not cognizant, that benefit to be derived will depend greatly upon the individual, the character and stage of the disease, and his ability to secure comfort in his or her newly elected residence. It is much better, therefore, that the physician's advice be obtained with reference to any particular case in order that grave mistakes may not occur, which otherwise might have been avoided. It behooves the physician by all means to be posted and to keep informed with reference to health resorts. Hearsay and newspaper reports are not to receive more credit than they deserve.

On a former occasion the attention of our readers was called to the Sanitarium at Las Vegas, Hot Springs, New Mexico, then under able management for the treatment of tuberculous patients. It is our desire at this time to bring to public notice Saint Joseph's Sanatorium, located at Silver City, New Mexico. It will be remembered that the government authorities after careful investigation, selected Fort Bayard as the most desirable location of the United States General Hospital for tuberculosis. Silver City is only nine miles from Fort Bayard and therefore naturally suited for the purposes of Saint Joseph's Sanatorium. The altitude is six thousand feet; average annual rainfall 12.3 inches; mean annual temperature; 54; absolute humidity 46; relative humidity 1.71; cloudy days (annually) 37; dew point 29.

The comparative similarity of climatic conditions at Silver City and Davas in Switzerland have been remarked. The institution is under the management of the Sisters of Charity and under the medical directorship of DOCTOR E. S. BULLOCK, a former resident of Detroit, Michigan. The character of the advisory board which DOCTOR BULLOCK has enlisted in his support, would in itself commend the institution to the confidence of those needing such assistance.

LEPROSY IN THE UNITED STATES.

IN The Physician and Surgeon, for January, 1902, it was stated that there were upward of two hundred fifty cases of leprosy in the United States. A later report of the Marine Hospital Service places the number at two hundred seventy-eight. DOCTOR ASHMEAD, the well-known leperologist, disputes these figures in the September (1902) number of the *Pacific Medical Journal*, he makes the statement that he knows of sixteen cases in New York City alone while the government reports allow for only seven cases in the entire state. He also has knowledge of three cases in Michigan, where none have been reported. One hundred lepers, on record in the Japanese emigration statistics, who emigrated to Oregon are not reported from that state. DOCTOR ASHMEAD also claims that there are four hundred lepers living in Louisiana, while the government figures place the number one hundred fifty-five. This would make a total of over seven hundred twenty-five cases. One of the reasons for the inaccuracy of the government statistics, the author maintains, is that leper specialists have failed to give data of their private cases to boards of health. Doctor Ashmead urges the importance of a national leper law for registration and segregation.

While, from the history of the past, so far as we are able to ascertain, few cases of so-called indigenous leprosy have come to our notice in this country, and while the change of environment and habits of living of lepers who emigrate to America, especially in the more northern states, seems to have had the effect of combatting the farther spread of the disease, it would seem only wise that very rigid measures be adopted to make sure that this incurable and disgusting disease does not get the upper hand of us.

Leprosy is by no means confined to any particular climate. It develops apparently with as equal rapidity in the extreme north as in the more southern regions, being particularly prevalent in Iceland, Russia, Norway and Sweden. There seems to be no reason, then, why it should not thrive in America. There can be no question as to the contagiousness of the disease, while heredity, that for many years was thought to be the main factor in its propagation, is, as in tuberculosis, daily becoming a more mooted question. The bacilli of leprosy are ever present where lepers are gathered together. They are found with ease in the secretions from the broken down tissues, in the urine, in the saliva, in the secretions from the nose, and Schæffer had no difficulty in demonstrating them on glass slides which he placed before lepers while they read aloud.

It is true that at the present time there is no need for alarm. But there is also no need for lack of govermental restriction as to the class of emigrants permitted to enter our country. From Doctor Ashmead's observations it would appear that America is becoming a dumping ground for the countries of Europe. Emigration from the Levant is on the increase of late; but it seems highly probable that our new public health service will be able to cope with the demands of the situation. Cowie.

ANNOTATIONS.

THE EARLIEST KNOWN PHYSICIAN.

It is by no means difficult to imagine the medicine man as perhaps the first product in the division of labor and to symbolize him even in the years before the flood. But to individualize such a character who lived some 5,500 years ago is truly noteworthy. Different writers have made historical mention of the earliest known physician, SOKHIT-NI-ONKH by name, which signifies "the man who is possessed of life," and SANDWITH relates in the *British Medical Journal*, some facts concerning his tomb. The tomb is located at Sakkarah, near Cairo. It is described as an oblong mastaba, sixty feet by twenty-eight feet. It had no chapel and no door, but there was a stela in the form of a false door near one corner. It was probably rifled and the mummy destroyed in very early times. SOKHIT-NI-ONKH was both physician and priest. His title as physician is sennu, a name signifying wisdom or knowledge, and represented in hieroglyphic writing by an arrow with a broken shaft. In the inscriptions he is referred to as the chief physician. The curiosity lover can obtain a portrait of SOKHIT-NI-ONKH if he so desires.

CONTEMPORARY.

QUACKERY.

[FRANCIS J. SHEPHERD, M. D., IN THE MONTREAL MEDICAL JOURNAL.]

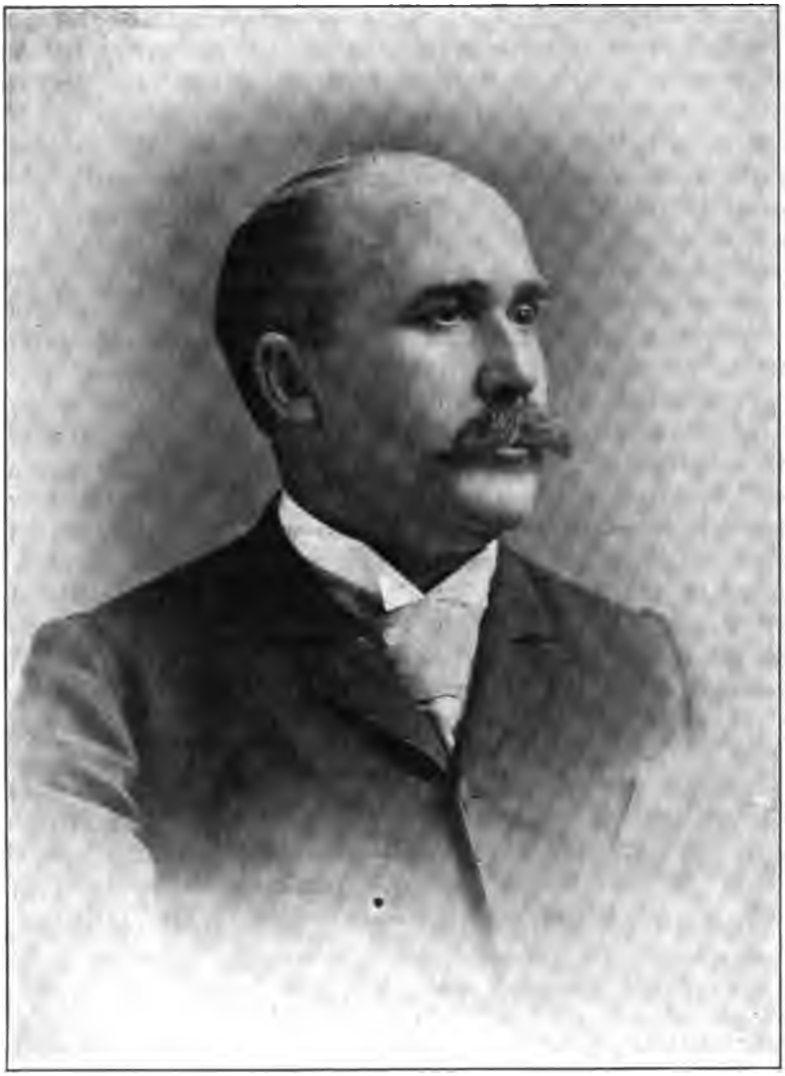
I HAD intended touching at length on the various quackeries which are now so rampant among the most cultivated classes, but time warns me I must be brief. I refer to such things as christian science, mental science, spiritualism, vitapathy, osteopathy and such like—but perhaps they have their usage in this rapid and restless age. They probably are a vent for people who would otherwise have to be confined in asylums at a great expense to the public. Could any individual write such a lot of stuff as the following without there being a suspicion of insanity in the case? "If I believe in the power of disease my thought atmosphere could not heal a patient. Disease has no power of its own, but only as much power as our ignorance concedes to it. Disease is ignorance, intelligence is cure. Disease is but a negation of the ubiquitous life principle. This life principle has taken entire possession of me and my thoughts. I live in it. I am it." Such stuff as this, *ad infinitum*, is read and believed in by thousands—believed in but not understood. Education will not abolish belief in quacks and quackery. I wrote an article on quackery many years ago which was published in the *Popular Science Monthly*, and I closed with the following quotation which seems appropriate on the present occasion: "The final though distant extinction of quackery is to be hoped for. It forms a fragment of that final triumph of reason and virtue which is the secret consolation of every philanthropist."

It is partly due to the profession itself that quackery flourishes. So many men who are unfit for the profession enter it and look on it as a business to make money, honestly perhaps, if possible, but to make it even if the credulity of the public is drawn on. Many of the doctors who write to papers like the "Alkaline Clinic," the "Medical Short-cut," and others of such a character, have a most misty idea of their profession, and apparently are ignorant enough to deceive themselves as well as the public. I fancy they practice all the pathys. One man from Texas asks the editor if he has anything that is a "dead shot" for eczema, another asks what is the most "up-to-date scientific caper" for goitre, and so on. One specimen of sputum from an old lady, which was sent to the editor for examination contained tubercle bacilli, diplococci, pneumobacilli, saprophytes and pus cells. Another patient, from the writer's description of her case, is diagnosed as having an extra vulnerability and an extra colony of microbes in her mouth. Such is the literature many feed upon, always looking for tips and sure cures, never accurately diagnosing the disease and always changing treatment. Is it any wonder that quacks flourish? It is a curious thing, however, that our medical laws seem unable to cope with quacks; but, if a man who has had a regular training has not obtained his license, he is immediately hauled up and fined.

MEDICAL NEWS.

NECROLOGY.

DOCTOR ABEL MIX PHELPS, of New York City, died at the Postgraduate Hospital, October 6, 1902, after a second operation for abdominal affection from which he had been a sufferer for some time. A minor operation was performed October 4, but as this gave only temporary relief, expediency indicated another and more serious surgical procedure which was conducted on the date of his demise. Doctor Phelps was a New Englander, having first seen light at Alburg Springs, Vermont, January 27, 1851. He was a lineal descendant of an English family which settled in Connecticut in 1630. His collegiate course was pursued at the University of Michigan, from which he obtained the degree of Doctor of Medicine in 1873. He entered college with the idea of becoming a civil engineer, but later elected the study of medicine. After graduation he returned to his native state and entered active practice as a



A M Phelps

[THROUGH THE COURTESY OF THE POSTGRADUATE.]

surgeon, having been appointed to the surgeoncy of the Vermont Central Railroad and of large iron corporations. At the close of an extensive and successful career of seven years, he went to Europe in 1880 and entered upon the study of surgery in Germany, where he spent four years in the clinics of Schede, Esmarch, von Volkman, Billroth, and Thiersch. While sojourning abroad he introduced the American methods in orthopedic surgery in the Allegemeines Krankenhaus at Hamburg, a specialty in which he was greatly interested at that time, and in which he afterward achieved world-wide fame. His chief contributions to surgery comprise the open incision club-foot operation, which was introduced to the profession in 1889; the lateral traction fixation hip-splint; the aluminium corset; and various other appliances and mechanical apparatus for the treatment of deformities and diseases of the joints, besides his operation for hernia which differs entirely from any other in that the inguinal canal is obliterated and fortified by a mattress of fine silver wire while the stitching is executed with a continuous wire suture. His college connection embraced the professorship of surgery in the University of Vermont, and of orthopedic surgery in the University of New York, and since 1887 in the New York Postgraduate Medical School and Hospital. He was affiliated with the American Orthopedic Society, the Medical Society of the State of New York, the Medical Society of the County of New York, and the Academy of Medicine, having been president of the first two organizations in 1894 and 1900 respectively. He was the founder of "Daisy Fields," a home for crippled children, located at Englewood, New Jersey. Such was the medical career of Doctor Phelps. As a man he was an upright citizen, a loyal friend, a loving husband, and a kind father.

THE SOURCE OF LIFE.

Professor Jaques Loeb, of Chicago University, startled the scientific world about a year ago by announcing that the vital force of life is not derived from heat, but results from the electric forces and the food which is taken into the body. Professor David J. Lingle, of the same institution, now announces an equally startling source of life. This scientist declares that heart action is not only stimulated and maintained by salt or sodium chlorid, but that oxygen gas is even a more important factor in sustaining the beat. This discovery was made while experimenting with a strip of turtle's heart, which he was taking from a vessel containing salt solution. As the strip became subject to the action of air the beating was greatly accelerated. Another experiment was then conducted with a portion of the ventricle of a turtle's heart, and when the specimen ceased to beat he immersed it in a solution of sodium chlorid, after which he deposited it in a jar of oxygen gas, where the beating was sustained for seventy-two hours.

A PROLONGED SLEEP.

MISS DORA MEEK, of Centralia, Illinois, the sleeping girl, who entered the embrace of Morpheus, on September 28, last, after a quarrel with her sweetheart, is becoming vastly weaker, and it is not expected that she will survive much longer. Her first sleep covered a period of ten days, at the end of which time an osteopath partly aroused her after a physician had applied ice to her spinal column and caused her to breathe ammonia fumes. She has slept soundly ten to fourteen hours each day since that date, and during the remainder of the time has seemed to be in a sort of trance. Clairvoyants, spiritualists and osteopaths have exercised their alleged powers over the patient, but without avail, and a regular physician, who first treated her, has again been requested to resume charge of the case. Several years ago the girl suffered a similar attack, which, however, only lasted ten days.

MINOR INTELLIGENCE.

DOCTOR A. LOIR, a nephew of the late lamented Pasteur, has gone to Rhodesia, Africa, to establish a Pasteur institute at Bulawayo, for the treatment of rabies.

DOCTOR LOUIS J. GOUX, of Detroit, announces that he has removed his office from 60 Washington Boulevard to the Stevens Building, corner Washington Boulevard and Grand River avenue.

DRINKING cups are likely to be tabooed by the Chicago Board of Education. The committee on buildings and grounds was recently instructed to submit to this body a plan for establishing drinking fountains in the public schools, whereby children may drink without placing their lips to any vessel.

DOCTOR JAMES B. HERRICK, of Chicago, Professor of Medicine in the Chicago Medical College, recently read a paper before the Washtenaw County Medical Society, entitled "The Value of the Study of the Older Medical Writers." The paper will be published in the January number of The Physician and Surgeon.

CHOLERA in the Philippine Islands has caused a mortality of 113,273, according to the latest mail report. On the day prior to the mailing of this report 258 cases with 113 deaths were registered throughout the provinces.

THE University of Michigan Clinical Society was organized by the staff of the University Hospital on Friday evening, November 28. Doctor C. B. Nancrede was elected President and Doctor J. G. R. Manwaring, Secretary. The society will meet on the fourth Wednesday evening of each month in the Surgical Amphitheatre of the Hospital.

IN a consignment of books lately received from Rome by the University of Michigan is an edition of the "Proceedings, Transactions and Memoirs of the Accademia dei Lincei," of Rome, which consists of one hundred ten volumes, and is complete from 1847 to the present. It was obtained at a cost of seven hundred seventeen dollars and sixty-two cents.

THE Lorenz Orthopedic Charity Hospital is the name of a prospective institution for New York City. Doctor Franklin E. Sylvester and Messrs. W. S. Brewer, C. F. Smith, D. B. Sanneman and B. F. Curtis are its incorporators. It is intended to establish a free hospital or dispensary for the charitable treatment of persons afflicted with deformities, especially congenital dislocations. The Lorenz method of dealing with hip-joint dislocation will be adopted.

DOCTOR EMILY DUNNING, of New York City, enjoys the distinction of being the first woman ambulance surgeon on record. On New Year's morning Miss Dunning assumed the position of interne and ambulance surgeon at Gouverneur Hospital, her appointment being for two years. She will not make trips on the ambulance until after she has served in the hospital six months. Doctor Dunning is a graduate of Cornell Medical College, and stood second in her class, which graduated last June.

CAROLINE WEBB, executrix of Joel G. Webb, has settled the famous tick bite suit against the Standard Life and Accident and the Travelers' Protective companies for six thousand dollars. It will be remembered that plaintiff, whose husband died of the effects of a tick bite about two years ago, filed suit in the Federal Court at Memphis to recover ten thousand dollars insurance from defendants, in each of whose companies deceased was insured for five thousand dollars. Defendants fought the claim on the ground that death ensued from natural causes, and not from violence or external causes, while the widow insisted that the cause of death was within the scope of the policy.

THE Carnegie Institute at Washington will revive the *Index Medicus*. It is announced that the trustees will appropriate $10,000 annually to insure the publication of this important journal. It will be edited by Doctors Robert Fletcher and Fielding H. Garrison. The subscription price will be five dollars per annum. This monthly classified record of the medical literature of the world was established in 1879 and was discontinued in 1899.

THREE buildings are being erected in connection with the University Hospital at Ann Arbor. The Psychopathic ward, in which the first stages of insanity will be studied, is to cost fifty thousand dollars. The Palmer ward, in which diseases of children will be treated, is to cost twenty thousand, and was established by a bequest of the late Mrs. L. M. Palmer, widow of Professor Alonzo B. Palmer, who formerly occupied the Chair of Practice in the University of Michigan. She also bequeathed fifteen thousand dollars as an endowment fund for the maintenance of this ward. A large boiler house, which is intended to heat the entire hospital plant, is fast approaching completion.

AN association of physicians has filed a petition in the Supreme Court at Atlanta, Georgia, for the incorporation of the American Congress of Tuberculosis. The purposes of the corporation are educational, charitable and scientific. The stockholders do not seek pecuniary gain in organizing the corporation, their aim being to promote discussion and to better the condition of tubercular subjects. A secondary object contemplates assisting in the organization of the World's Congress on Tuberculosis. The corporation will not be represented by capital stock but will have the right to sue and be sued, to borrow money, to purchase property, and to exercise other rights and privileges invested in incorporated bodies.

JOHN BYRNE, M. D., of Brooklyn, New York, died at Montreux, Switzerland, October 2. He was born in Kilkeel, Ireland, in 1825, and studied medicine in Belfast, Dublin, Glasgow and Edinburgh, obtaining his degree in 1846 in the latter city. After spending two years in hospital service in his native country he emigrated to America and settled in Brooklyn, where he achieved prominence as a gynecologist. In 1852 he graduated from the New York Medical College, and in 1856 he was one of the originators of the Long Island College Hospital, in which institution he subsequently became clinical professor of gynecology. He also held the position of surgeon-in-chief to the Saint Mary's Hospital for Women in Brooklyn. He was a member of the American Gynecological Association, the New York Obstetrical Society, the Kings County Medical Society, the American Medical Association and a Fellow of the New York Academy of Medicine, having been honored by the presidency of the first two organizations. His demise was attributed to melancholia, which is thought to have been induced by the loss of five of his children from tuberculosis.

RECENT PUBLICATIONS.

REVIEWS.

THE DIAGNOSIS OF SURGICAL DISEASES.*

OF works on medical diagnosis there are plenty of a mediocre character, but of works on surgical diagnosis there are few. Surgical diagnosis is treated of principally in works on general surgery and there in the briefest manner. This volume is moreover as valuable as it is rare. The author groups diseases according to similarity of symptoms and points of general resemblance, thus strangulated herniæ and conditions simulating incarceration are considered in one chapter, tumors of the skull in another, et cetera. It is a book the surgeon should not be without.

*By Doctor E. Albert, Late Director and Professor of the First Surgical Clinic at the University of Vienna. Authorized translation from the eighth enlarged and revised edition, by Robert G. Frank, A. M., M. D. With fifty-three illustrations. New York: D. Appleton & Company, 1902.

A TEXT-BOOK OF HISTOLOGY.*

THE number of good text-books of histology already upon the market would make the publication of the present volume appear somewhat superfluous. The translation is well done; the make-up of the volume is excellent; and the large number of good illustrations would make the appearance of this text-book noteworthy, were it not for the fact that we have already just as serviceable works in the Böhm-Davidoff, Schäfer, et cetera. In spite of the many meritorious features of the book, it does not seem as if a new histological text-book was needed at the present moment. The translator has given a strong local color to the book by the text additions, which represent almost exclusively work done at Johns Hopkins. Inasmuch as other equally important and meritorious work in histology has been done elsewhere in this country this exclusiveness savors somewhat of narrowness. Nevertheless, the volume is good, and may be recommended as a text-book for undergraduates.

*By Doctor Lådislaus Szymonowicz, Professor of Histology and Embryology in the University of Lemberg. Translated by John B. MacCallum, M. D., Johns Hopkins Medical School, Baltimore. Octavo, 437 pages, 277 illustrations, including 57 full-page plates in colors and monochrome. Cloth, $4.75 net. Lea Brothers & Company, Philadelphia and New York, 1902.

A TEXT-BOOK OF ANATOMY.*

THE second edition of Gerrish's text-book contains sections written by Beran, Keiller, McMurrich, Stewart, Woolsey and the editor. The work is unusually well-printed, and richly illustrated. An important feature is a series of horizontal sections at different levels. In the chapter on osteology there has been added a series of drawings showing the areas of attachment of the muscles to the bones. The volume contains over a thousand illustrations, many of which are in several colors. The chief criticism of the work is based upon the fact that numerous anatomical investigations of recent date receive too scanty attention or none at all. For this reason the book is much better adapted to the needs of the undergraduate than for advanced workers or investigators. It is essentially a teaching book, and in this respect forms a valuable addition to anatomical text-books.

*By American Authors. Edited by Frederic Henry Gerrish, M. D., Professor of Anatomy in the Medical School of Maine, Bowdoin College. Second edition, thoroughly revised and enlarged. In one imperial octavo volume of 943 pages, with 1003 engravings in black and colors. Cloth, $6.50 net. Leather, $7.50 net. Flexible water-proof binding, for use on the dissecting table, $7.00 net. Lea Brothers & Company, Publishers, Philadelphia and New York.

PATHOLOGY AND PATHOLOGICAL ANATOMY.*

THE fact that the German work has reached its sixth edition is probably to be explained by the fact that it is used by the German student as a short and concise manual, very much in the same way that manuals are used in this country. As a text-book of General and Special Pathological Anatomy, this work of Schmaus can lay claim to being but little less than such a manual, inasmuch as it attempts to enclose all this subject-matter in a volume, which, taken in all, is not equal to one-third of Ziegler's volume of General Pathology alone. The fact that there is a notable absence of argumentative style, quotation of authorities and pursuit of personal opinion in Schmaus' work is regarded by the editor as good reason for its translation into English. If Schmaus is to be used, as the German students use it, as a manual in connection with a more scholarly text-book of pathology, the translation will serve a purpose in putting before American students such a condensed statement of pathological knowledge. If on the other hand it is intended for use as a main text-book it cannot but serve to establish a superficial knowledge of that branch of medical study, a full knowledge of which is essential in the proper grasping of the problems presented in practical medicine. Much of the original force of Schmaus' concise statements has been lost in the translation.

*Schmaus-Ewing. Lea Brothers & Company, 1902.

A TREATISE ON DISEASES OF THE SKIN.*

THE present volume is by far the best work on dermatology published in this country. In pathology, symptomatology, diagnosis and treatment, the work is quite up-to-date, and cannot but prove to be of the greatest value to the student and practitioner, The careful bibliography makes the book invaluable to the special worker in dermatology. The illustrations are numerous and very excellent; the style is unusually good; and the majority of chapters form interesting reading. Though holding a conservative position with regard to the results of recent pathological research in certain skin affections, the author expresses freely his personal views as to the probable infectious character of herpes zoster, pityriasis rosea, eczema and psoriasis, though in the last named disease, at least, the theory of parasitism will hardly be accepted by the majority of clinicians. On the whole the book is strongly to be commended, not only for specialists, but for students and general practitioners.

*For the use of Advanced Students and Practitioners. By Henry W. Stelwagon, M. D., Ph. D., Clinical Professor of Dermatology, Jefferson Medical College and Woman's Medical College, Philadelphia; Dermatologist to the Howard and Philadelphia Hospitals. Handsome octavo of 1125 pages, with 220 text-illustrations, and 26 full-page lithographic and half-tone plates. Price, cloth, $6.00 net; sheep or half morocco, $7.00 net. Philadelphia and London: W. B. Saunders & Company, 1902.

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ORIGINAL ARTICLES.

MEMOIRS.

WILLIAM BEAUMONT AS A SCIENTIST.*

BY JOHN NELSON GOLTRA, A. M., M. D., SAULT SAINT MARIE, MICHIGAN.
ACTING ASSISTANT SURGEON IN THE UNITED STATES ARMY.

[THIS PAPER HAS NOT BEEN PUBLISHED IN ANY OTHER JOURNAL.]

A SHORT time ago when a school teacher in one of our western cities asked of the school the question, "What is the greatest canal in the United States?" a small boy promptly replied "The alimentary canal!" MARK TWAIN, taking as the basis of his calculations the statement of scientific observers that the Mississippi river adds to its length by sedimentary formation three hundred feet every year, goes on to estimate that in a comparatively few years it will have added several hundred miles to its length and will stick out over the Gulf of Mexico like a fishing pole! We do not need to resort to such juggling of facts and figures in order to come to a fair appreciation of the question of the hour, yet a brief comparison may not be a loss of time. If as anatomists tell us, the average length of the alimentary canal in the adult is about twenty-five feet, and if of our seventy-six millions of population one-half can be taken as adult; and if of the remaining half fifteen feet may be taken as the average length, then we have in the United States alone two hundred sixty-five thousand miles of alimentary canal, or enough, as the statistician would say, to reach twelve times around the globe. Again, the tonnage as well as the length of this great canal is surprising. Our present army ration provides about three and sixty-five one hundredths pounds of food per day per man. If three and one-half pounds can be taken as the average daily food of a healthy man, dividing and averaging the demand of the total population as before, we find that our seventy-six millions of population will consume one hundred thousand tons of food per day, or more than thirty-six million tons per year; one and one-half times the total tonnage for last year of our great "Soo" canal! Truly the youthful genius of the west made no mistake.

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* Read at the unveiling of a monument to DOCTOR WILLIAM BEAUMONT, at Fort Mackinaw, Michigan, July 10, 1900. This paper was a contribution to the Symposium presented on the occasion of the Beaumont Memorial Exercises, which were conducted by a conjoint meeting of the MICHIGAN STATE and the UPPER PENINSULA MEDICAL SOCIETIES, held July 10, 1900. It should have been published with the papers comprising the Beaumont Memorial Number of The Physician and Surgeon in December, 1900, but unfortunately the manuscript did not come into the possession of this journal until recently.

But it is not in the total length, nor yet in its freight-carrying capacity alone or even chiefly that our interest in this great canal centres, nor yet again in its functions as a sewer, which are also enormous. But far and away above all things, in astonishing complexity yet beautiful precision is the labyrinth of its daily physiological and chemical processes, manufacturing as it does hour by hour its own reagents and recuperating hour by hour its own resources! And it was precisely the deep mysteries of this labyrinth that were disturbing the minds and theories of men when BEAUMONT, by a fortunate chance, wisely grasped and determinedly pursued, was able to offer entirely new explanations and to establish by facts now no longer disputed many of the *real* elements of the digestive process.

It must be remembered that these were among the pioneer days of chemistry and physiology. But little was then known of these sciences, even as we know them now. HARVEY'S discovery, two hundred years before, of the circulation of the blood still stood out as an isolated and a single well-established physiological fact. The principle of multiple proportions as embodied in the atomic theory, was only then beginning to be recognized, for we find the elder DALTON first advancing it in 1804. And COUNT RUMFORD, our only titled citizen (except those of the feminine persuasion, of whom we are getting a great plenty) had not at this time developed his far-reaching principle of the conservation and correlation of forces. While JANSSEN had devised at Middleburg, in Holland, a sort of compound microscope, also about two hundred years before, yet it was only about this time that VAN DEYL, another Hollander, first constructed the achromatic lens. Then FRAUNHOFER, at Munich, began to produce them. But it was not until the very year before BEAUMONT began his investigations that the two CHEVALIERS, in Paris, combined several of such lenses into one system and composed the objective as we have it now.

While master minds had been ardently and diligently wrestling with such weighty and fundamental problems as these, others no less gifted had been eagerly enquiring of Nature, how in her wonderful laboratory, she could transform the material products of the earth into physical and intellectual forces—how she could make the varied products of the mineral and vegetable kingdoms contribute to the great domain of thought—

DOCTOR WILLIAM BEAUMONT.
Formerly Surgeon in the United States Army.

even to the creative act of mental concept. Many and crude observations had been made, which became the basis of cruder theories concerning the processes by which omnivorous man was enabled daily to recuperate his expended energies. HIPPOCRATES had supposed that the digestive process was one of seething and boiling agitation; CELSUS had claimed that the disintegration was due to putrefaction, Some had concluded that it was all done by trituration, others by fermentation. HIPPOCRATES had noticed the fuming action, as if from the presence of an acid, in the vomit when it was ejected upon marble floors. But SPALLANZANI, whom BEAUMONT quotes ("Physiology of Digestion," second edition, page 76), had declared the gastric solvent, which he named "gastric juice," to be entirely neutral; a solvent for alimentary matter within and without the stomach; that it does not putrify under normal temperatures of the stomach; but is preservative in its action; and that it is secreted by this viscus *between meals*, during which time it *accumulates* and then acts as a solvent menstruum on the substances exposed to it." PROUT in 1826, whom also BEAUMONT quotes (idem, page 77), "declares the gastric juice to be really acid—does not contain an organic acid, but free hydrochloric, or muriatic acid."

And so, in this maelstrom of contending theories and contradictory opinions and vague guesses arose BEAUMONT, in his modest way announcing himself as "a humble inquirer after truth—a simple experimenter." "And if," he says, "I have been led to conclusions opposite to the opinions of many who have been considered the great luminaries of physiology, and, in some instances, from all the professors of this science, I hope the claim of *sincerity* will be conceded to me, when I say that such difference of opinion has been forced upon me by the convictions of experiment, and, as I think, by the fair deductions of reasoning."

We owe to the patient investigations of DOCTOR BEAUMONT, almost without reserve, our present knowledge of the two chief factors of gastric digestion, the *peristaltic movements* of the stomach, and the *secretion of the gastric juice.* I am not aware that any writer of today claims any prior source of information on the former of these two important functions. Indeed all, with the greatest unanimity, seem to accord to the genius of the great observer, which happily was of the good old-fashioned variety, the genius for hard labor and close adherence to the truth as he discovered it, all the credit of teaching us the gastric movements. And well they may! for to the rare opportunity, indeed the *only* one ever afforded to man to see, with his two eyes and to feel with his fingers, repeatedly, and to observe during the process of a healthy digestion, to such a fortunate chance he brought the valuable traits of a plodding student, a careful observer of details, and a faithful reporter of the *facts* just as he found them!

The simple statement of his observations reads, as one has said, "like a fairy tale. And it seems incredible that one ever really saw the working of this all-important organ." So evidently exact and vivid are his descriptions that I can best serve you and the purpose of the hour by quoting the author, begging to first remind you that no living man ever, before or since, saw these sights.

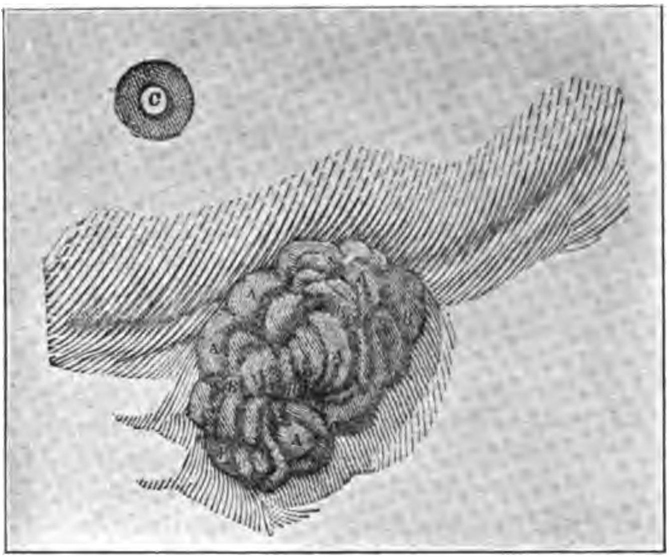

FIGURE I.

This engraving represents a portion of the stomach prolapsed through the aperture, with the inner surface inverted and spread out over the integuments.

"The human stomach is furnished with muscular fasciculi, so arranged as to shorten its diameter in every direction. By the alternate contraction and relaxation of these bands, a great variety of motion is induced in this organ, sometimes transversely, and at other times longitudinally. These alternate contractions and relaxations, when affecting the transverse diameter, produce what are called *vermicular* or *peristaltic* motions. * * * These motions not only produce a constant disturbance, or churning of the contents of this organ but they compel them, at the same time, to revolve around the interior, from point to point, and from one extremity to the other. * * * These contractions and relaxations of the muscular fasciculi do not observe any very exact mode. * * * The bolus, as it enters the cardia turns to the left; passes the aperture; descends into the splenic extremity; and follows the great curvature toward the pyloric end. It then returns, in the course of the smaller curvature, makes its appearance again at the aperture, in its descent into the great curvature, to perform similar revolutions. Such I have ascertained to be the revolutions of the contents of the stomach, from being able to identify particular portions of food, and from the fact that the bulb of the thermometer which has been frequently introduced during chymification, invariably indicates the same movements. These revolutions are completed in from one to three minutes. They are probably induced, in a great measure by the circular or transverse muscles of the stomach, as indicated by the spiral motion of the stem of the thermometer, both in descending to the pyloric portion and ascending to the splenic. These motions are slower at first than after chymification has considerably advanced. * * * There is perfect admixture of the whole ingestæ during the period of alimentation and chymification. There is nothing of distinct lines of separation of old and new food. * * * The whole contents of the stomach, until chymification be nearly complete, exhibit a heterogeneous mass of solids and fluids, hard and soft, coarse and fine, crude and chymified, all intimately mixed and circulating promiscuously through the gastric cavity, like the mixed contents of a closed vessel gently agitated or turned in the hand."

No one claims at this day to understand fully the intricate movements of the stomach during digestion. But it is very generally agreed that the functions of the *two ends* so far as their muscular action is concerned, are somewhat distinct, the few inches of the smaller end, latterly called the "antrum pylori," appearing to exercise a selective influence on the completed acid chyme while rejecting certain solid particles of undigested food which it hurls back for further treatment into the storehouse or retort-like portion, or the cardiac end. And here again we seek the light of BEAUMONT'S experiments. He says (page 104, idem):

"In attempting to pass a long glass thermometer tube through the aperture into the pyloric portion of the stomach, during the later stages of digestion, a *forcible contraction* is first perceived at this point and the bulb is stopped. In a short time there is a general relaxation, when the bulb passes without difficulty, and appears to be. drawn quite forcibly for three or four inches toward the pyloric end. It is then released and forced back or suffered to rise again; at the same time it gives to the tube a circular or rather spiral motion, and frequently revolves it completely over. These motions are distinctly indicated and strongly felt in holding the end of the tube between the thumb and the finger. And after the bulb has passed the transverse band it requires a pretty forcible grasp to prevent the stem from slipping from the hand, and being drawn suddenly down to the pyloric extremity. When the tube is left to its own direction at these periods of contraction it is drawn in nearly its whole length, to the depth of ten inches, and it requires considerable force, and gives to the fingers the sensation of a strong suction power, like drawing the piston from an exhausted tube, to draw it back."

What a simple experiment and a plain description of actions, the rationale of which might be studied for centuries to come!

Again, we are indebted to DOCTOR BEAUMONT for most all of what we absolutely know concerning the *nature* and *secretion* of the gastric juice. And first, as to the nature. SPALLANZANI, who shortly before BEAUMONT'S time had conducted a very long and careful series of experiments, and had approached more nearly than any other to a knowledge of the real character of the gastric solvent, had erred in these two very important items: its *chemical reaction*, and in the *manner of its secretion*. The error in respect to the reaction was very probably due to the manner in which he was compelled to secure it, and a very large admixture of mucus was possibly the reason of its neutral character. BEAUMONT obtained it *pure*, and describes it thus: "The pure gastric juice is fluid, *clear* and *transparent;* without *odor;* a little *salt*, and perceptibly *acid*," and when thus obtained, he says in a footnote (page 301), he has kept for eleven months in a tightly corked vial a portion which has remained clear and has retained all its original properties unchanged and undiminished.

With this fluid he made a great and very interesting variety of experiments demonstrating its action on a wide range of dietary articles. When placed in a test-tube and kept at a temperature of 100° Fahrenheit he found that digestion progressed in this way very much the same as it did in the stomach, except that it was much slower. He noticed that most all the common articles of diet would digest in the test-tube in a very much shorter time if finely pulverized or broken up than if left whole, but that if so broken up, they would dissolve as quickly as if masticated and then put into the test-tube. He also observed that bile was not ordinarily to be found mixed with the gastric secretion, but he was able by a series of manipulations to make it flow into the stomach at almost any time, and that when present it assisted very materially in the digestion of certain kinds of food. For instance raw olive oil required sixty hours and raw cream twenty-five hours to complete their digestion in the test-tube, but on the addition of the fluid containing bile, the process was very much quickened.

This method of demonstrating what had theretofore been sought for in vain, of deriving from actual experiments under such favorable circumstances, knowledge for which men had been groping in darkness so long, and of opening to the light of day the hidden secrets of Nature's working methods gave to BEAUMONT'S revelations an emphasis and an authority which has never yet been questioned and perhaps never will be. No wonder that his announcements created a sensation in the medical world! No wonder that FLINT in his work on "Physiology" should say: "We are indebted to BEAUMONT for nearly all that is positively known regarding the facility with which different articles are disposed of in the stomach."

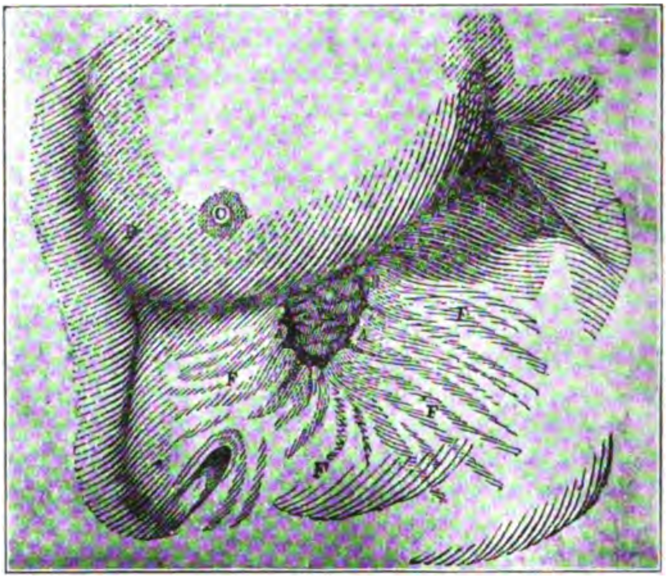

FIGURE II.
This engraving represents the ordinary appearance.

We find in BEAUMONT'S book a long and carefully prepared list of foods, showing the averages of the time required for the complete digestion of each, by the individual, and under the different modes of cooking or other preparation, as proven by his observations. From this table we learn that when SAINT MARTIN'S stomach was in a perfectly normal condition (for it had its ups and downs, like many other stomachs), it would completely digest boiled rice, tripe and pig's feet in an hour; venison steak, salmon, trout, raw eggs whipped, mellow sweet apples and barley soup in an hour and a half; codfish, tapioca, raw eggs not whipped, milk, mellow sour apples and raw cabbage without vinegar, potatoes, baked and roasted parsnips, green beans, gelatine sponge cake, hash, boiled lamb and roasted pig, turkey, and wild goose, in two and a half hours, while most of the other common articles of diet required from three to four and a half hours. Roasted pork and beef suet take the ribbon with records, respectively, of five and a quarter and five and a half hours. The soups, with the exception of barley soup are slow in digesting. So also are poultry and salt fish. Eggs, so much used in the sick room, are shown to be disposed of, by the healthy stomach, when they are roasted, in two and a quarter hours, when soft boiled, in three hours, and when fried or hard boiled, in three and one-half hours.

On the subject of the *secretion* of the gastric juice the observations of BEAUMONT threw a *world of light.* Here indeed his descriptions are most vivid. He learns that nature manufactures this wonder-working fluid only as she needs it, and when not prevented from so doing by outside influences, or inflammatory or febrile conditions. He takes particular pains to correct the error of SPALLANZANI as to its accumulation between meals. He finds that the morning hour is the best time to obtain it, or after a brief period of fasting. He pushes aside, from the two and a half inch "aperture" almost directly under the left nipple, the "valve" or series of folds of the lining membrane of the stomach covered with their papillæ, which Nature has thrown out as if to shield her secret processes, and notes that these folds of the valve are covered with a soft membrane of a reddish-pink hue and almost dry. With his fingers and thumbs he enlarges the opening to five or six inches. He turns his subject to the light and looks within. He finds he is looking into a closed pouch, easily distensile, and lined with a delicate membrane, of a light or pale pink color, a soft or velvet-like appearance, and covered with a very thin transparent mucus, lining the whole interior of the organ. He touches a drop of this moisture to his tongue and finds it to be of neutral reaction. Immediately beneath the mucous covering, and apparently incorporated with the lining membrane, he sees small spheroidal or oval-shaped glandular bodies, from which the mucous fluid appears to be secreted. He introduces a gum-elastic bougie several inches into the organ, when wonder of wonders! a thin limpid fluid begins to appear over the whole interior lining! He takes up his magnifying glass and discovers innumerable minute lucid points, and very fine nervous or vascular papillæ rising from the villous membrane and protruding through the mucous coat, from which distills a pure, limpid, colorless, slightly viscid fluid! He tastes it! It is strongly acid! He tries the covering of the valve. That has now become acid, too! Its hue has deepened and it has become softer and more velvety. "These papillæ," he says," I am convinced from observation, form a part of what is called by authors the *villi* of the stomach. Other vessels, *perhaps absorbing* as well as secretory, compose the remainder. That some portions of the villi form the excretory ducts of the vessels or glands, I have not the slightest doubt, from innumerable ocular examinations of the secretion of the gastric juice. Though the apertures of these vessels could not be seen, even with the assistance of the best microscopes that could be obtained, yet the points from which the fluid issued were clearly indicated by the gradual appearance of innumerable, very fine, lucid specks, rising through the transparent mucous coat, and seeming to burst and discharge themselves upon the very points of the papillæ, diffusing a limpid, thin fluid over the whole interior gastric surface. This appearance is conspicuous only during alimentation. These lucid points I have no doubt are the termination of the excretory ducts of the gastric vessels or glands, though the closest and most accurate observation may never be able to discern their distinct apertures."

He varies these observations widely, and finds that the ingestion of food will cause the gastric juice to flow more freely than the presence of the bougie. He lets his subject swallow some food and by his artificial window watches it enter the stomach and follows its motions while it is being digested, and he sees the stomach at once begin its vermicular contraction. He coolly opens his window and puts in the same amount and kind of food and finds that, when so introduced, it is disposed of in the same manner and time as when swallowed. He carefully extracts from one to two ounces of the gastric juice at a time and accurately compares its solvent power on foods within and without the stomach. Introducing a thermometer he learns that in the ordinary digestive process the temperature of the organ is not increased. Still extending his experiments he demonstrates that *exercise does* increase the temperature of the stomach from one to two degrees, whether the organ is full or empty, and by this means aids the digestive process, if not pursued to the verge of weariness. He shows the condition of the lining membrane following a spree; and also observes that anger or vexation of his subject almost completely checks the peristaltic movements and plainly retards the flow of the gastric juice. Some of his experiments tend to show that a given quantity of the gastric secretion will dissolve only a given quantity of food, and he reasons from this fact that the solvent process is largely a chemical one, although some of the experiments recounted (notably numbers 104 and 115) indicate to him the presence of some element not understood.

It is not surprising, since organic chemistry, as we appreciate it now, was then practically unknown, that BEAUMONT did not isolate from the wonderful menstruum that he was studying, the particular proteolytic enzyme contained therein, which as it were intensifies itself and adds to the effectiveness of the solvent. Aye, and it seems to be perfectly possible that we may overestimate the part played by the complex organic compound, and may underestimate the share of the strictly chemical action of the acid solvent. The very fact that the chyme, which becomes so strongly acid during its formation, is then so speedily and easily converted into an alkaline menstruum, would seem to indicate that its chemical affinities are already fairly well satisfied. On this subject again, BEAUMONT says: "Its action on food is indicative of its chemical character. Like other chemicals it dissolves or decomposes and combines with a fixed and definite quantity of matter, when its action ceases."

BEAUMONT finds that the sense of taste has nothing to do with the sensation of hunger. He believes the latter to be caused by distension of the vessels whose function it is to supply the solvent, and demonstrates that hunger is as quickly and completely satisfied by the introduction of food into the stomach through the aperture as through the mouth. He infers that animal and farinaceous foods are more easy of digestion than the vegetable; that this process is especially favored by minuteness and tenderness of fibre, and that when these prerequisites are present solid food is easier of digestion than fluid. He suggests, however, that the nutritious qualities of food may not depend upon, or accord with the times required for their digestion.

His whole range of experiments and observations seem to argue in favor of solid, substantial food, taken regularly and in reasonable quantity.

He would have no sympathy with the desire for "brain and nerve food," such as some one wanted and wrote to OLIVER WENDELL HOLMES, asking if *fish* were not excellent brain food, and to whom the venerable doctor replied, "Yes, fish IS *said* to be good brain food, and judging from your letter, I should suppose that you would need a good-sized whale for breakfast every morning." Nor with that other and equally fallacious idea so prevalent among theological students, that milk and water is about all a "high thinker" can digest. "Cambridge tea," I've heard them call it, and some even "Cambric tea." If that be the "meat they feed upon," we need not be surprised at such theology as that namby-pamby sort of a youth I once heard of, gave to his congregation: "My very dear friends," he was saying to them, "if you do not repent—to some extent, and be converted — in some degree, I — very much fear that you will be damned — in a measure." If you will pardon here a personal opinion, I wish to say that I have often observed that *great geniuses* are *always* good *feeders*, and I prefer that as an aphorism to the antiquated one of "spare living, and high thinking."

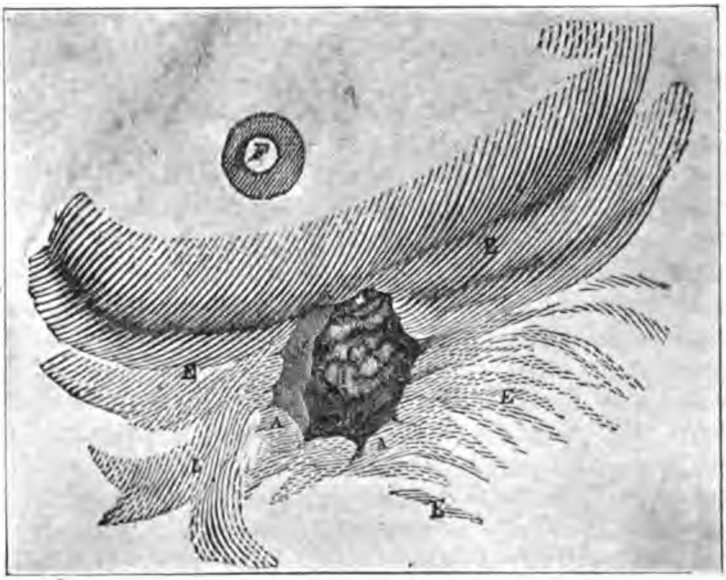

FIGURE III.

This engraving represents the appearance of the aperture with the valve depressed.

It is not claimed for BEAUMONT that he unfolded all the refinements of the physiological science of the present day. Nor could one wish to detract one whit from the honor due to a host of faithful and even more skillful investigators who have followed him. Indeed these are they who most freely express their gratitude to him who opened to them the door, and, standing, as it were, on the threshold, invited them to consider the wonders of nature which chance revealed to him.

We find in the literature of this subject widespread if not universal gratification that the care of SAINT MARTIN fell to one who did not fail to appreciate the value of his unequaled opportunity. And did he not rise to the occasion? Three years after the accident the experiments were begun, SAINT MARTIN then being in perfect health. But at the end of six months, during which time DOCTOR BEAUMONT had been ordered to Fort Niagara, thence to Plattsburg Barracks, whither he had taken his subject, SAINT MARTIN took French leave (for he was a Frenchman), "And then," says the author, "I gave him up as a lost subject for physiological experiments and returned to my post at the West again." But after four years of diligent enquiry he located him again, in Lower Canada, and at his own expense transported the man, with his wife and two children (for SAINT MARTIN had married in the meantime), to his own then post of duty at Fort Crawford, Prairie du Chien, now Fort Wise, a distance of two thousand miles, and paid him for his time, that he might continue his experiments. Contrast this with the attitude of that noble member of the General Committee of the British Association, who declined to approve of a grant of two hundred pounds to secure SAINT MARTIN for a year's observation, on the ground that the subject was "coarse and indelicate and calculated to disgust"! fearing, I suppose, as HOTSPURR would have told him, that the man might come

"Betwixt the wind and HIS nobility!"

The noble member has gone to his reward. Peace! (and refined environment) be to his ashes!

Through all the years of his observations, BEAUMONT maintained SAINT MARTIN and his family, though he himself was poor, and his salary small, and when SAINT MARTIN desired to return to Lower Canada, fitted him out with supplies and boats for the voyage via the Mississippi and the Ohio rivers, on the latter's promise that he would return when required. A year later BEAUMONT engaged him for a year, for the expressed purpose of making another series (the fourth) of experiments, and took him from Plattsburg to New York City and Washington, where he continued his study. SAINT MARTIN afterward went to Oakdale, Massachusetts, and although he lived fifty-nine years after the accident, and survived his great benefactor twenty-eight years, yet MR. GEORGE H. WHITE tells us that he always considered that he owed his life to DOCTOR BEAUMONT, and would never submit to the examinations of any other.

Tyndall says that DOCTOR WHEEWELL, in a lecture on "The Influence of Science on Intellectual Education" before the Royal Institution has shown "that every advance in intellectual education has been the effect of some considerable scientific discovery or group of discoveries." And if that be so, where is the scientific discovery upon a theme of such widespread application, and so engrossing, not only to the medical profession, but to the laity as well? His work has become a CLASSIC and ranks deservedly high. I quote also from an excellent memoir of DOCTOR BEAUMONT, from the pen of DOCTOR THOMAS REYBURN and published in 1854. In conclusion, he says: "In whatever light we view the work of DOCTOR BEAUMONT, we must acknowledge it one of surpassing interest and merit. The nature and results of the case must ever excite the curiosity and wonder of the common mind. The efforts and sacrifices required to procure and retain the subject in the service of the author for the purpose of investigation must ever command the admiration of the intelligent, whilst the zeal and perseverance bestowed for years on a course of experiments, requiring the most delicate and unremitting attention, and the important and peculiar nature of the investigations made, cannot fail to be appreciated by the scientific in all countries through all future time. Of our profession we may truly say that no one can rise from the perusal of the work or of the many pages of the many authorities who quote from it without an abiding sense of gratitude for the laborious and well-directed researches of its lamented author."

There is no sentiment in science. The man of scientific pursuit deals only with native truth and unembellished materials. But when his work is done, he may and should receive the rewards of a just appreciation from his fellow men, quite as hearty as that accorded to the hero of other scenes. And whether by humble tablet or by heroic statue, it is eminently fitting that the happy throngs who year by year visit this delightful spot should be taught to say one to another: "Here lived and labored a faithful student of science, a great benefactor of the human race—here lived and labored WILLIAM BEAUMONT."

WILLIAM BEAUMONT AND HIS WORK.*

BY VICTOR C. VAUGHAN, PH. D., SC. D., M. D., ANN ARBOR, MICHIGAN.
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[THIS PAPER HAS NOT BEEN PUBLISHED IN ANY OTHER JOURNAL.]

IN our busy lives as practitioners of medicine and surgery, we too seldom think of those whose labors have placed certain departments of medicine among the exact sciences. The healing art had its origin in the priestly superstitions of primitive men. From what it then was to what it now is, medicine has been advanced by the patient labor and persistent toil of many men, who have devoted their lives to searching for the truth. We are better able to cope with disease than were the medical priests of ancient Egypt, the astrologers of Chaldea and the theorists of two hundred years ago, because certain men have pursued the experimental study of physics, chemistry and biology with earnest purpose and well directed skill. It is my intention to devote the time allotted to this address, which your favor, well appreciated by its recipient, permits me to give, in calling your attention to one of our honored dead, and to his work which was of great service in the development of physiological knowledge. I have chosen for the subject of this paper, "William Beaumont and His Work." I have been induced to make this selection because, in the first place, his studies were begun in the then Territory of Michigan; secondly, American medical biographers have not, in my opinion, done the memory of this man justice; and thirdly, the fact that he accomplished so much under great difficulties may cheer some of us in carrying our burdens, which at times grow exceedingly heavy, and may lead some of our younger members to realize that it is the duty, as it should be the pleasure, of every medical man, however limited his facilities may be, to add something to the sum of that knowledge which surpasses all other, inasmuch as it is utilized in the saving of human lives.

WILLIAM, the son of Samuel Beaumont, a New England farmer, was born at Lebanon, Connecticut, in 1785. I have been unable to find any record of the student life of the young man. However, that he was diligent in the pursuit of knowledge is evidenced by the fact that soon after reaching his majority he became a school teacher at Champlain, Clinton county, New York. At the same time he began the study of medicine, which he continued later under the direction of Doctor Benjamin Chandler, of Saint Albans, Vermont. There is no evidence, so far as I can find, that BEAUMONT ever attended a medical school. On December 2, 1812, he enlisted as surgeon's mate, in the Sixteenth Infantry, and was transferred to the Sixth Infantry, June 6, 1813.* A few months later the young medical assistant saw something of the wounds of war at the capture and destruction of York, now Toronto, where the retreating English exploded a magazine containing a hundred barrels of powder under the feet of the advancing Americans.

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* President's address before the MICHIGAN STATE MEDICAL SOCIETY, 1896.

At the close of the war in 1815, DOCTOR BEAUMONT resigned his commission and began the practice of medicine at Plattsburg. During his service as Surgeon's mate he had won the esteem and friendship of Doctor Joseph Lovell, who in 1818 became the first Surgeon General of the United States Army. The first of BEAUMONT'S letters on file in the Surgeon General's office is dated at Plattsburg, New York, December 18, 1818, and it expresses thanks for the offer of a thousand dollar clerkship in the office at Washington, which was at first accepted, but later declined. In 1820, DOCTOR BEAUMONT again entered the medical service of the army. This time he had the rank of Post-Surgeon, and was assigned to duty at Michillimackinac, now Mackinac Island, where he reported to General Macomb in June.

Two years later, on June 6, 1822, the accident which permanently opened the walls of the stomach of Alexis Saint Martin, and enabled BEAUMONT to satisfactorily study gastric digestion, happened. The wound is described as follows: "The charge, consisting of powder and duck shot, was received in his left side, he being at a distance of not more than one yard from the muzzle of the gun. The contents entered posteriorly, and in an oblique direction, forward and inward, literally blowing off the integument and muscles for several inches in circumference, fracturing and carrying away the anterior half of the sixth rib, fracturing the fifth, lacerating the lower portion of the left lobe of the lungs, as well as the diaphragm on the left side."

This wound was carefully treated by DOCTOR BEAUMONT, and finally, as is well known, it healed, leaving a permanent gastric fistula, which was ordinarily closed by a valvular flap of the mucous membrane. In May, 1825, nearly three years after the accident, the first experiments were made. In June of the same year DOCTOR BEAUMONT was ordered from Mackinac to Fort Niagara. He took Saint Martin with him and continued the studies. In August the two visited Burlington and Plattsburg, and at the latter place the patient, doubtless feeling that he was now of more service to the doctor than the doctor was to him, departed without ceremony.

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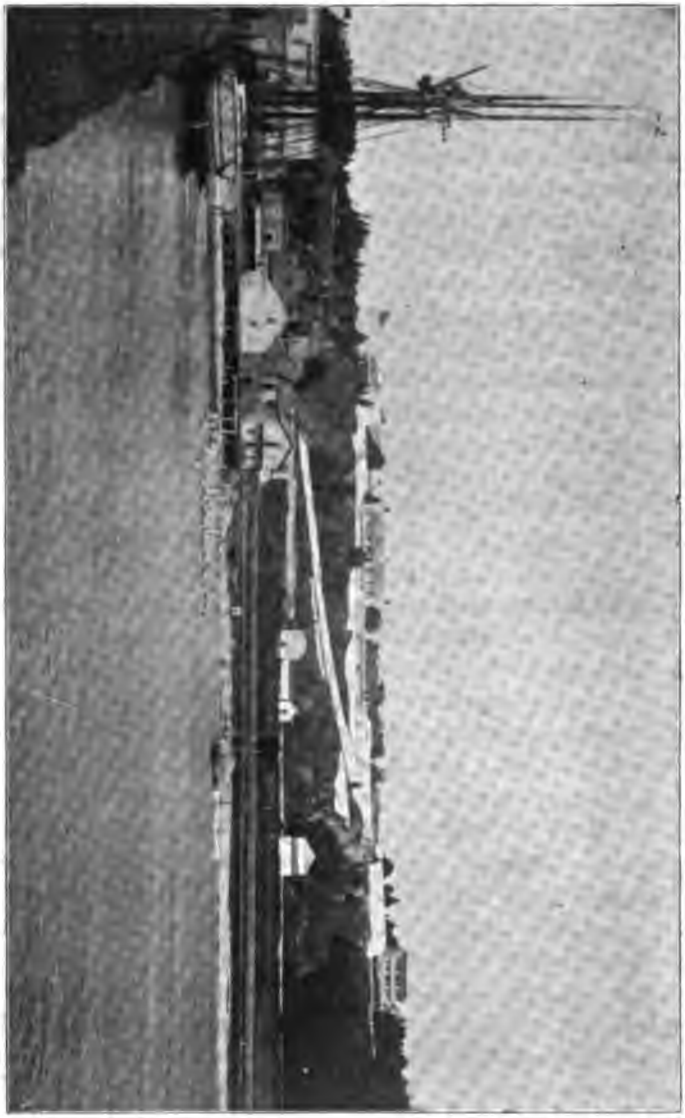
* In giving these data, I have two sources of information: (1) The records of the Surgeon General's office, kindly furnished me by Surgeon General George M. Sternberg and Assistant Surgeon General Charles Smart, to both of whom my best thanks are due. (2) "A Memoir of the late WILLIAM BEAUMONT," by Thomas Reyburn, M. D., *Saint Louis Medical and Surgical Journal*, 1854. There are several contradictions, all of minor importance, in these authorities. In such cases I have followed the official records from the Surgeon General's office.



FORT MACKINAC, MICHIGAN.
Where William Beaumont, Surgeon United States Army, was stationed from 1821 to 1825.

At Fort Niagara in June and July, 1825, there happened the events which led to the trial of Lieutenant E. B. Griswold by court martial, in which DOCTOR BEAUMONT was the principal witness. The most important charge against Lieutenant Griswold was that he had attempted to shirk duty by falsely reporting himself sick. This charge was substantiated by the evidence of DOCTOR BEAUMONT. The court found Lieutenant Griswold guilty, and sentence was passed in conformity with this finding. The President reversed the finding of the court, and in doing so took occasion to criticise the testimony of the surgeon. DOCTOR BEAUMONT replied, in a circular written tersely but with dignity, to the President's criticism, which may be found in General Order, Number 9, of February 18, 1826. I cannot forbear quoting one paragraph from DOCTOR BEAUMONT'S circular. Suspecting that Lieutenant Griswold was feigning illness, he prescribed a mixture of fifteen or twenty grains of calomel and five or six grains of tartar emetic. It seems that the lieutenant, having been informed of the nature of the prescription, returned to duty in preference to taking the medicine. The doctor was criticised for this treatment, and to this criticism he replied as follows: "Whether the plan adopted, either in a moral or professional point of view be justifiable or not, I leave for medical men and candid judges to decide; it was salutary and had the intended effect of returning Lieutenant Griswold to his duty without prejudice to his health or constitution; neither is it of very great moment with me whether a successful experiment be of *less* or *more* than doubtful propriety, that speedily returns a soldier from the *sick report* to the effective service of the government, be he *private, noncommissioned* or *commissioned officer;* neither do I think it of very great consequence whether it be done *secumdum artem, secumdum naturam* or *terrorem,* provided it be *well done.*"

In May, 1826, DOCTOR BEAUMONT was transferred to Fort Howard, on Green Bay, and in 1828 to Fort Crawford, on the Upper Mississippi. During these years the doctor was constant in his endeavor to locate his truant patient. Finally he learned that Saint Martin had become the possessor of a wife, and the father of two children, and was domiciled in lower Canada, nearly two thousand miles from Fort Crawford. At his own expense he induced agents of the American Fur Company to transport the family through this distance, and in August, 1829, after an interruption of four years, the experiments were again begun. The work was continued until the spring of 1831, when Saint Martin and his family were allowed to go to lower Canada. with the promise that he would return when required. In August, 1832, DOCTOR BEAUMONT was granted a leave of absence; he proceeded to Plattsburg where he met Saint Martin by agreement, and the time from November, 1832, to March, 1834, was spent in Washington in carrying on the experiments. In the fall of this year the first edition of "The Physiology of Digestion with Experiments on the Gastric Juice," was published.

Early in 1834, DOCTOR BEAUMONT was ordered to Jefferson Barracks, near Saint Louis. He had but recently started for his new post when the Secretary of War, Lewis Cass, received from Edward Everett the following petition signed by more than two hundred members of Congress: "Being informed that Doctor Charles E. Jackson, an eminent chemist of Boston, is successfully prosecuting an analysis of the gastric fluid of Alexis Saint Martin, the Canadian boy attached to DOCTOR BEAUMONT, Surgeon of the United States Army, and that the analysis cannot be satisfactorily accomplished without the presence of DOCTOR BEAUMONT and Saint Martin; and regarding the case as furnishing a rare and fortunate opportunity of demonstrating important principles in physiology by which credit may be conferred on the medical science of our country, and important benefits accrue to humanity; also, understanding that several foreign national scientific bodies are anxious to draw Saint Martin from this country, for the purpose of prosecuting the investigations now making by one of our countrymen, who is in every way competent to the work; and persuaded that the opportunity now afforded, if neglected, will be lost to our country forever, we request that the Honorable Secretary of War will station DOCTOR BEAUMONT at Boston, or in the vicinity, for the term of four months, or longer if necessary for the object."

The reply of the secretary to this petition was as follows: "I should have considered it due to the very respectable signers of the recommendation to comply with their request in this instance, had I not ascertained that another engagement had been made by the Surgeon General, with the consent of DOCTOR BEAUMONT, which is more acceptable to him than the proposed measure of sending him to Boston. Before I received your letter he was on his route to Saint Louis, the place of his destination, and under these circumstances I trust that you will accord with me in opinion that it is not advisable to change his station at present." Doctor Lovell, the Surgeon General, wrote on the back of this paper: "DOCTOR BEAUMONT already under-stands that he cannot conveniently be stationed at Boston, so he has stated that this application was made without his knowledge or desire. He has gone to his station without any desire to leave it at present."

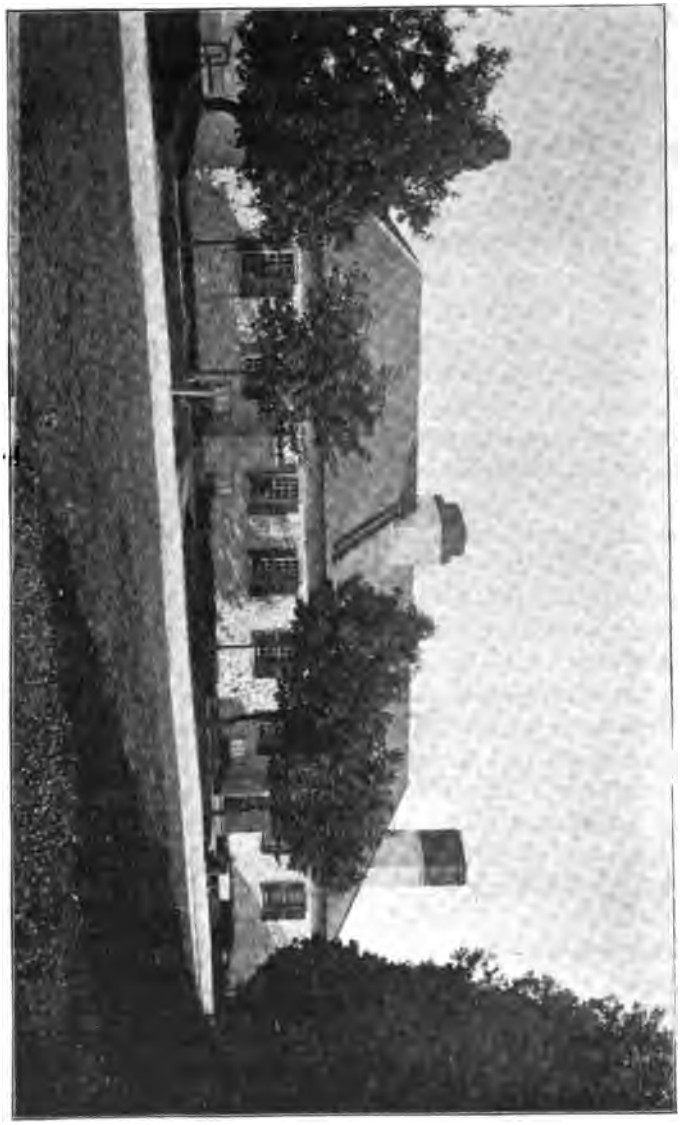
It would seem from the petition and the answers that the former was drawn in the interests of Professor Jackson, rather than at the request of DOCTOR BEAUMONT. However, the interest manifested by Honorable Edward Everett in this valuable work was intelligent and real. DOCTOR BEAUMONT had often expressed a desire to take Saint Martin to Europe, where the best chemists and physiologists might utilize the opportunity for the study of gastric digestion to the fullest extent, and Mr. Everett introduced an amendment to the appropriation bill of 1834 calling for ten thousand dollars for further experimentation, but the amendment was lost.

DOCTOR BEAUMONT reported his arrival at Jefferson Barracks July 1, 1834, but one month later he asked to be relieved and sent to Fort Crawford, with permission to delay three months in changing stations. The leave was granted. He went to Plattsburg, but was soon ordered to return to Jefferson Barracks as a witness in a court martial. In 1835 he was made Purveyor of Medical Supplies for the Western Military District and Surgeon to the Saint Louis Arsenal. Here his military duties were so light that he was permitted to open an office and give his attention to private practice. A fellow practitioner, Doctor Thomas Reyburn, says of DOCTOR BEAUMONT at this time: "His mature age and ripe experience, the reputation he had acquired in the army and by the publication of his work on the gastric juice, together with the fact that society was in large part composed of military men and their families, tended no doubt to give him that preeminence in the profession which few could contest with him on the score of superiority, skill and experience."

In 1837, DOCTOR BEAUMONT wrote to a friend in Washington, as follows: "I have no wish or intention of resigning my appointment in the army at present, though the professional encouragement I meet with here might seem sufficient inducement to do so, were avarice or professional fame the motive of my ambition. I have a very handsome, lucrative and respectable private practice, reputation far above my merits, and professional popularity more than commensurate with my best practical skill or abilities."

In March, 1839, he requested a leave of absence, and suggested a tour of inspection of the upper river and lake posts.

These requests were not considered favorably by the War Department, and instead of their being granted Doctor Beaumont was ordered to proceed immediately to Florida for duty in the field. Against this order he remonstrated, pleading advanced age, length of service, and claiming that the order was contrary to the usual regulations. The order was repeated in most positive form, and was this time met by resignation. It might be remarked here, that the first Surgeon General, Doctor Joseph



SURGEON BEAUMONT'S QUARTERS, FORT MACKINAC.

Lovell, who had greatly aided BEAUMONT by obtaining books on the subject of digestion for him, and by allowing him to change posts, and by granting short leaves of absence, when the experimental work could be benefited thereby, died October 17, 1836, and it is altogether probable that the man, who had so long been regarded as somewhat a favorite of the Surgeon General, should be made to feel the insults of those less honored, as soon as the highest authority passed into other hands.

DOCTOR BEAUMONT continued to practice medicine in Saint Louis, favored by a large clientage, and honored and beloved by his fellow practitioners. One of the latter speaks of him as follows: "He was gifted with strong natural powers, which, working upon an extensive experience in life, resulted in a species of natural sagacity, which, as I suppose, was something peculiar in him, and not to be attained by any course of study. His temperament was ardent, but never got the better of his instructed and disciplined judgment; and whenever or however employed, he always adopted the most judicious means for attaining ends that were always honorable, In the sick room he was a model of patience and kindness, his intuitive perceptions guiding a pure benevolence never failed to inspire confidence, and thus he belonged to that class of physicians whose very presence affords nature a sensible relief."

During the cholera epidemic of 1849, DOCTOR BEAUMONT, then sixty-four years of age, devoted his days and nights to the most arduous professional duties which fall at such times upon one known to be possessed of sound judgment, ripened by experience and approved by success.

In March, 1853, he fell in descending the steps of a house to which he had been called professionally. At first but little importance was attached to his injuries, but later a carbuncle appeared on the back of his neck, and he died on the 25th of April.

I have now finished my brief sketch of the life of DOCTOR BEAUMONT, and I desire to make some comments upon his work. In undertaking this part of my theme, I desire, in the first place to call attention to the clear, unequivocal style in which DOCTOR BEAUMONT wrote. As I have already stated, I have been unable to give any definite information concerning the extent and character of his education, but his little book on "Digestion" should now be considered as a classic. His writings show that he possessed the following qualifications which should belong to every man who attempts scientific research: (1) He knew what others before him had done in the same line of work. He was thoroughly familiar with the important literature of the subject. When we recall the fact that he was only an Assistant Surgeon stationed at an isolated post in the then wilderness of the Territory of Michigan, we must admit that it required energy and zeal for him to obtain and familiarize himself with the works of Spallanzani, Magendie, Tiedmann and Gmelin, Leuret, Lassaigne, Carminiti, Viridet, Werner, Hunter, Marquart and Vauquelin, Montegre, Prout, Broussais, and others. That he did acquaint himself thoroughly with the writings of these authors is shown in his book, and is conclusive proof that he was a student, earnest and intelligent in his labors. (2) His experiments were made in the simplest and most natural way possible. He did not forget, as too many experimenters do, that conclusions are worthless when the observations are made under artificial and unnatural conditions. No better example of the inutility of experimentation under abnormal conditions need be offered than that furnished by the work of Montegre, who could vomit at will, and who chose to vomit during the intervals of digestion. From the examination of the fluid thus obtained from the stomach Montegre concluded that what had been supposed to be gastric juice is, in fact, nothing but saliva; that the principal use of the gastric juice is to dilute the food; and that the only action of the stomach is, "une absorption vitale et elective." BEAUMONT saw the fallacy of these conclusions, and demonstrated that the gastric juice is secreted only when the walls of the stomach are stimulated by the presence of food. (3) His experiments are recorded in the simplest terms, and his conclusions are never forced but necessarily follow from the observations. Take, for instance, his conclusion that the gastric juice contains free muriatic acid and some other active *chemical* principle. He easily ascertained that the fluid was acid, and Dunglison and Emmett demonstrated for him the presence of free hydrochloric acid; but his observations led him to conclude that in addition to the free acid, some other active chemical agent was present. He did not weaken the value of his work by theories as to the nature of the other chemical substance, and the discovery of pepsin remained to be worked out by the researches of Schwann, and to be confirmed by Wasmann.

There are at least two early experimental works on digestion which every student of physiology should read. These are the works of Spallanzani and BEAUMONT.

It is, I think, quite generally supposed that BEAUMONT'S good fortune as an investigator was solely dependent upon what we must regard as the fortunate accident to Saint Martin. This is partially true. Had the accident never happened, BEAUMONT could not have rendered the great service to physiology and to medicine that he did render, but proper credit should be given him. Saint Martin's was not the first case of permanent gastric fistula in man. On this point Doctor Reyburn makes the following statement: "In order to estimate properly the professional zeal and enthusiasm of DOCTOR BEAUMONT, we must remember the untoward circumstances under which he struggled in the case of Saint Martin, and compare his labors and its results with those of similar cases presented to the observation of physiologists in Europe. Burrows, in the fourth volume of the 'Transactions of the Royal Irish Academy,' relates a case of fistulous opening into the stomach, and a similar case is noted by Schenkien. Louis refers to other cases which occurred to Foubert and Covillard. Helm, of Vienna, publishes another case, and one other occurred at La Charite in Paris. To what important scientific uses were these cases applied? What experiments are recorded in connection with them? What fact observed in them has been referred to by physiologists to decide the nature and laws of the animal functions? With the exception of some brief references made by authorities to a few experiments connected with the case at La Charite, science can draw no deduction and derived no benefit from them. It was left to the unpretending genius of the Army Surgeon of isolated frontier military posts to turn to its scientific uses a case more important than which has never been presented to the searching eyes of the medical philosopher. To his zeal and ambition, to his sacrifices, to his patient perseverance and research, is due a boon to science, to which even Europe, when the opportunity presented itself, advanced no claims."

I have already made mention of the fact that DOCTOR BEAUMONT desired to carry Saint Martin to Europe in order that the most renowned physiologists and chemists might see and study this case. This illustrates the broad views that DOCTOR BEAUMONT had. He was not working simply for personal fame, but he desired that the greatest benefit might be secured from the case under his charge. Not being able to take his patient to Europe, he wrote and sent samples of the gastric juice to several scientists. He was very desirous that a complete and accurate analysis of the fluid should be made. One European chemist to whom some of the gastric juice had been sent wrote as follows: "Animal analysis is the most difficult department of chemistry, and there are not now living many chemists who could perform a complete analysis of the gastric juice. Alexis

Thenard in France, Prout in England, and Berzelius in Sweden, are the best analysts we have in this department, and I advise you to send specimens of the juice to them." DOCTOR BEAUMONT did attempt to send a sample of the gastric juice to Berzelius. The package accompanied by a history of the case of Saint Martin was entrusted to the captain of an American vessel sailing for northern Europe, with instructions that it be left with the quarantine officer at Gottenberg, with the request that it be forwarded to Berzelius at Stockholm, but the package never reached its destination. However, it is not probable that the great Swedish chemist could have done more in the way of a satisfactory analysis than was done by Professors Dunglison and Emmett at the University of Virginia. These gentlemen distilled the fluid, and demonstrated the presence of free hydrochloric acid in the distillate. This had previously been done by Prout, working with the contents of the stomach of dogs killed during digestion, but the analysis of Dunglison and Emmett was made upon the juice obtained by the mechanical irritation of the walls of the stomach, and, notwithstanding the subsequent criticism of Lehmann that the free hydrochloric acid found in the distillate was due to the decomposition of chlorides by lactic acid, which he held to be the normal acid of the juice, the results of the American chemists have proved to be correct.

In order to properly estimate the value of BEAUMONT'S work, it will be necessary to give a brief résumé of the history of the views held by scientific men concerning gastric digestion. In doing this we will not go back further than the middle of the eighteenth century, when the experimental study of the subject was begun by Reamur, who caused a tame buzzard to swallow metallic tubes closed at one end and covered with muslin at the other end and filled with food. When these tubes were regurgitated by the bird, it was found that the enclosed food was, to a greater or less extent, dissolved. This disposed of the theory previously held, that the stomach effected solution solely by a process of grinding. In 1777 Doctor Stevens, of Edinburgh, availed himself of the services of a man who was accustomed to amuse the people and gather a few pennies by swallowing bits of stone. Stevens prepared small silver balls made in halves, fastened together with a screw, and perforated by minute holes. These were filled with different articles of food, and swallowed by the performer. When these balls were evacuated, their contents were found to be digested and often had disappeared altogether. These experiments supplied additional evidence against the mechanical theory, since the food enclosed in the silver balls was protected against the grinding action of the walls of the stomach.

The brilliant Abbe Spallanzani who, by the way, is said to have received his enthusiasm for scientific research from the celebrated woman professor, Laura Bassi, of Bologna, wrote his celebrated and valuable dissertations on digestion during the last quarter of the eighteenth century. These writings consist of the records of numerous experiments, the atrocities of which the antivivisectionists of today would take great pleasure in detailing. He repeated, multiplied and varied the investigations of Reamur. He obtained gastric juice by causing animals to swallow bits of sponge attached to strings by which the sponge was withdrawn at pleasure. The fluid thus obtained was mixed with food, and the mixture carried in the arm pit until the food was digested. He recognized the acidity of the gastric secretion, but made no attempt to ascertain the nature of the acid.

BEAUMONT comes next in the list of those who studied the gastric juice taken from the stomach during life, and was the first to make researches on the gastric secretions of man. He accurately described the appearance of the mucous membrane of the stomach in health and disease, during fasting and in digestion. He studied and recorded very clearly the movements of the stomach from the moment of the reception of the food until the last bit passed through the pylorus. He showed that the flow of the fluid is intermittent, and occurs only when the walls of the stomach are stimulated by the presence of food, and that during the hours of fasting the stomach contains only a small amount of mucus which is neutral or feebly alkaline in reaction. He demonstrated that contrary to the teaching of Magendie bile does not normally flow into the stomach. He studied the relative effects of the gastric juice on different kinds of food, and made records of the comparative digestibility of different foods, and did this so accurately that his results are now utilized by us in selecting the diet of our patients. He made such an exact study of the physical and chemical natures of the gastric juice that, with the exception of the discovery of pepsin, the closest research of modern times has added but little to the work done by him.

Every physician, who prescribes for digestive disorders, and every patient, who is benefited by such a prescription, owes gratitude to the memory of WILLIAM BEAUMONT, who, in 1825, on the island of Mackinac, began his studies of digestion, which he pursued with great labor and skill for the benefit of mankind.

WILLIAM BEAUMONT; A PIONEER AMERICAN PHYSIOLOGIST.*

By WILLIAM OSLER, M. D., Baltimore, Maryland.
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[THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

Come with me for a few moments on a lovely June day in 1822, to what were then far-off northern wilds, to the Islands of Michilimacinac, where the waters of Lake Michigan and Lake Huron unite and where stands Fort Mackinac, rich in the memories of Indian and voyageur, one of the four important posts on the upper lakes in the days when the rose and the fleur-de-lys strove for the mastery of the western world. Here the noble Marquette labored for his lord, and here beneath the chapel of Saint Ignace they laid his bones to rest. Here the intrepid LaSalle, the brave Tonty and the resolute Du Luht had halted in their wild wanderings. Its palisades and blockhouses had echoed the war whoops of Ojibwas and Ottawas, of Hurons and Iroquois, and the old fort had been the scene of bloody massacres and hard fought fights, but at the conclusion of the War of 1812, after two centuries of struggle, peace settled at last on the island. The fort was occupied by United States troops, who kept the Indians in check and did general police duty on the frontier, and the place had become a rendezvous for Indians and voyageurs in the employ of the American Fur Company. On this bright spring morning the village presented an animated scene. The annual return tide to the trading post was in full course, and the beach was thronged with canoes and batteaux laden with the pelts of the winter's hunt. Voyageurs and Indians, men, women and children, with here and there a few soldiers, made up a motley crowd. Suddenly from the company's store there is a loud report of a gun, and amid the confusion and excitement the rumor spreads of an accident, and there is a hurrying of messengers to the barracks for a doctor. In a few minutes an alert-looking man in the uniform of a United States Army surgeon made his way through the crowd and was at the side of a young French Canadian who had been wounded by the discharge of a gun, and with a composure bred of an exceptional experience of such injuries prepared to make the examination. Though youthful in appearance, Surgeon Beaumont had seen much service, and at the capture of York and at the investment of Plattsburg he had shown a coolness and bravery under fire which had won high praise from his superior officers. The man and the opportunity had met—the outcome is my story of this evening.

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* Read before the Saint Louis (Missouri) Medical Society, October 4, 1902.

I.—THE OPPORTUNITY—ALEXIS SAINT MARTIN.

On the morning of June 6 a young French Canadian, Alexis Saint Martin, was standing in the company's store, "where one of the party was holding a shotgun (not a musket), which was accidentally discharged, the whole charge entering Saint Martin's body. The muzzle was not over three feet from him—I think not more than two. The wadding entered, as well as pieces of his clothing; his shirt took fire; he fell, as we supposed, dead."

"DOCTOR BEAUMONT, the surgeon of the fort, was immediately sent for and reached the wounded man in a very short time, probably three minutes. We had just gotten him on a cot and were taking off some of his clothing. After the doctor had extracted part of the shot, together with pieces of clothing, and dressed his wound carefully, Robert Stuart and others assisting, he left him, remarking: 'The man cannot live thirty-six hours; I will come and see him by and by.' In two or three hours he visited him again, expressing surprise at finding him doing better than he had anticipated. The next day, after getting out more shot and clothing and cutting off ragged edges of the wound, he informed Mr. Stuart, in my presence, that he thought he would recover."*

The description of the wound has been so often quoted as reported in BEAUMONT'S work that I give here the interesting summary which I find in a "Memorial" presented to the Senate and House of Representatives by BEAUMONT. "The wound was received just under the left breast, and supposed, at the time, to have been mortal. A large portion of the side was blown off, the ribs fractured and openings made into the cavities of the chest and abdomen, through which protruded portions of the lungs and stomach, much lacerated and burnt, exhibiting altogether an appalling and hopeless case. The diaphragm was lacerated and a perforation made directly into the cavity of the stomach, through which food was escaping at the time your memorialist was called to his relief. His life was at first wholly despaired of, but he very unexpectedly survived the immediate effects of the wound, and necessarily continued a long time under the constant professional care and treatment of your memorialist, and, by the blessing of God, finally recovered his health and strength.

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*Statement of G. G. Hubbard, an officer of the company, who was present when Saint Martin was shot, quoted by Doctor J. R. Bailey, of Mackinac Island, in his address on the occasion of the Beaumont Memorial Exercises, Mackinac Island, July 10, 1900.—The Physician and Surgeon, December, 1900.

"At the end of about ten months the wound was partially healed, but he was still an object altogether miserable and helpless. In this situation he was declared a 'common pauper' by the civil authorities of the county, and it was resolved by them that they were not able, nor required, to provide for or support, and finally declined taking care of him, and, in pursuance of what they probably believed to be their public duty, authorized by the laws of the territory, were about to transport him in this condition, to the place of his nativity in lower Canada, a distance of more than fifteen hundred miles.

"Believing the life of Saint Martin must inevitably be sacrificed if such attempt to remove him should be carried into execution at that time, your memorialist, after earnest, repeated, but unavailing, remonstrances against such a course of proceedings, resolved, as the only way to rescue Saint Martin from impending misery and death, to arrest the process of transportation and prevent the consequent suffering, by taking him into his own private family, where all the care and attention were bestowed that his condition required.

"Saint Martin was, at this time, as before intimated, altogether helpless and suffering under the debilitating effects of his wounds—naked and destitute of everything. In this situation your memorialist received, kept, nursed, medically and surgically treated and sustained him, at much inconvenience and expense, for nearly two years, dressing his wounds daily, and for considerable part of the time twice a day, nursed him, fed him, clothed him, lodged him and furnished him with such necessaries and comforts as his condition and suffering required.

"At the end of these two years he had become able to walk and help himself a little, though unable to provide for his own necessities. In this situation your memorialist retained Saint Martin in his family for the special purpose of making physiological experiments."

In the month of May, 1825, BEAUMONT began the experiments. In June he was ordered to Fort Niagara, where, taking the man with him, he continued the experiments until August. He then took him to Burlington and to Plattsburg. From the latter place Saint Martin returned to Canada, without obtaining DOCTOR BEAUMONT'S consent. He remained in Canada four years, worked as a voyageur, married and had two children. In 1829 BEAUMONT succeeded in getting track of Saint Martin, and the

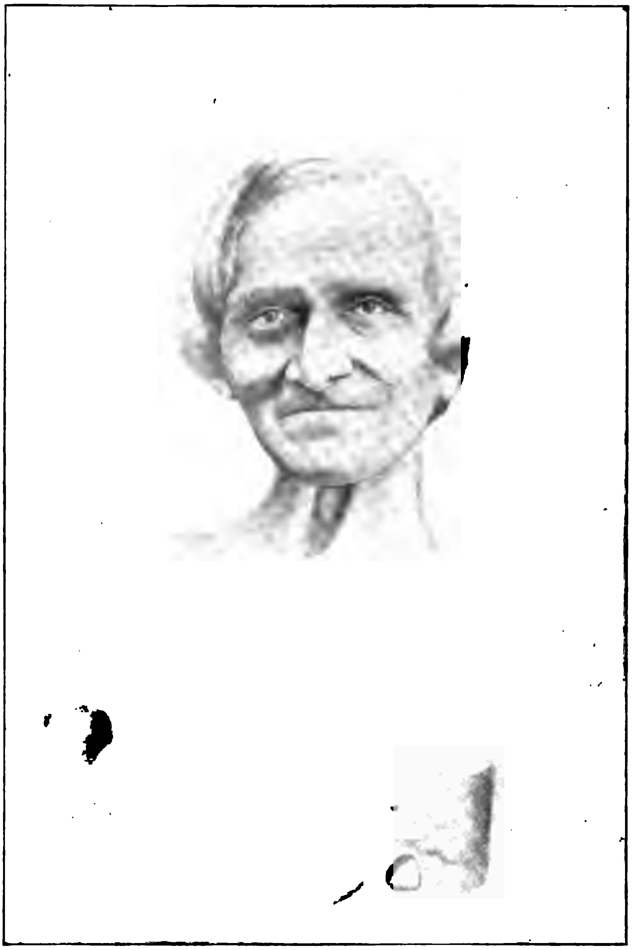
American Fur Company engaged him and transported him to Fort Crawford on the upper Mississippi. The side and wound were in the same condition as in 1825. Experiments were continued uninterruptedly until March, 1831, when circumstances made it expedient that he should return with his family to lower Canada. DOCTOR BEAUMONT often lays stress on the physical vigor of Saint Martin, as showing how completely he had recovered from the wound. In November, 1832, he again engaged himself to submit to another series of experiments in Plattsburg and Washington. The last recorded experiment is in November, 1833. In 1833 he was enrolled in the United States Army at Washington as Sergeant Alexis Saint Martin, of a detachment of orderlies stationed at the War Department. He was then twenty-eight years of age, and was five feet five inches in height. Among the papers there are two articles of agreement, both signed by the contracting parties, one dated October 19, 1833, and the other November 7 of the same year. In the former he bound himself for a term of one year to "serve, abide and continue with the said WILLIAM BEAUMONT, wherever he shall go or travel or reside in any part of the world his covenant servant and diligently and faithfully, et cetera, * * * that he, the said Alexis, will at all times during the said term when thereto directed or required by said William, submit to assist and promote by all means in his power such philosophical or medical experiments as the said William shall direct or cause to be made on or in the stomach of him, the said Alexis, either through and by means of the aperture or opening thereto in the side of him, the said Alexis, or otherwise, and will obey, suffer and comply with all reasonable and proper orders of or experiments of the said William in relation thereto and in relation to the exhibiting and showing of his said stomach and the powers and properties thereto and of the appurtenances and the powers, properties and situation and state of the contents thereof." The agreement was that he should be paid his board and lodging and $150 for the year. In the other agreement it is for two years and the remuneration $400. He was paid a certain amount of the money down.

In 1846 BEAUMONT sent his son Israel for Alexis, and in a letter dated August 9, 1846, his son writes from Troy: "I have just returned from Montreal, but without Alexis. Upon arriving at Berthier I found that he owned and lived on a farm about fifteen miles southwest of the village." Nothing would induce him to go.

The correspondence with Mr. Morrison in 1851 and 1852 is most voluminous, and DOCTOR BEAUMONT offered Alexis $500 for the year, with comfortable support for his family. He agreed at one time to go, but it was too late in the winter and he could not get away.

The last letter of the series is dated October 15, 1852, and is from DOCTOR BEAUMONT to Alexis, whom he addresses as *Mon Ami.* Two sentences in this are worth quoting: "Without reference to past efforts and disappointments—or expectation of ever obtaining your services again for the purposes of experiments, et cetera, upon the proposals and conditions heretofore made and suggested, I now proffer to you in faith and sincerity, new, and I hope satisfactory, terms and conditions to ensure your prompt and faithful compliance with my most fervent desire to have you again with me—not only for my own individual gratification, and the benefits of medical science, but also for your own and family's present good and future welfare." He concludes with, "I can say no more, Alexis—you know what I *have* done for you many years since—what I have been *trying*, and am still anxious and wishing to do with and for you—what efforts, anxieties, anticipations and disappointments I have suffered from your non-fulfillment of my expectations. Don't disappoint me more nor forfeit the bounties and blessings reserved for you."

So much interest was excited by the report of the experiments that it was suggested to BEAUMONT that he should take Alexis to Europe and submit him there to a more extended series of observations by skilled physiologists. Writing June 10, 1833, he says: "I shall engage him for five or six years if he will agree, of which I expect there is no doubt. He has always been pleased with the idea of going to France. I feel much gratified at the expression of Mr. Livingston's desire that we should visit Paris, and shall duly consider the interest he takes in the subject and make the best arrangements I can to meet his views and yours." Mr. Livingston, the American minister, wrote from Paris March 18, 1834, saying that he had submitted the work to Orfila and the Academy of Sciences, which had appointed a committee to determine if additional experiments were necessary and whether it was advisable to send to America for Alexis. Nothing, I believe, ever came of this, nor, so far as I can find, did Alexis visit Paris. Other attempts were made to secure him for purposes of study. In 1840 a student of DOCTOR BEAUMONT'S, George Johnson, then at the University of Pennsylvania, wrote saying that Doctor Jackson had told him of efforts made to get Alexis to London, and Doctor Gibson informed him that the Medical Society of London had raised £300 or £400 to induce Saint Martin to come, and that he, Doctor Gibson, had been trying to find Saint Martin for his London friends. There are letters in the same year from Doctor R. D. Thomson of London to Professor Silliman urging him to arrange that DOCTOR BEAUMONT and Alexis should visit London. In 1856 Saint Martin was under the observation of Doctor Francis Gurney Smith, in Philadelphia, who reported a brief series of experiments, so far as I know the only other report made on him.*



ALEXIS SAINT MARTIN.
Aged 81 years.

Saint Martin had to stand a good deal of chaffing about the hole in his side. His comrades called him "the man with a lid on his stomach." In his memorial address Mr. C. S. Osborn of Sault Sainte Marie states [see The Physician and Surgeon, December, 1900] that Miss Catherwood tells a story of Etienne Saint Martin fighting with Charlie Charette because Charlie ridiculed his brother. Etienne stabbed him severely and swore that he would kill the whole brigade if they did not stop deriding his brother's stomach.

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* *Medical Examiner*, 1856, and "Experiments on Digestion," Philadelphia, 1856.

At one time Saint Martin traveled about exhibiting his wound to physicians, medical students and before medical societies. In a copy of BEAUMONT'S work, formerly belonging to Austin Flint, Junior, and now in the possession of a young physician of Saint Louis, there is a photograph of Alexis sent to Doctor Flint. There are statements made that he went to Europe, but of such a visit I can find no record.

My interest in Saint Martin was of quite the general character of a teacher of physiology, who every session referred to his remarkable wound and showed BEAUMONT'S book with the illustration. In the spring of 1880, while still a resident of Montreal, I saw a notice in the newspapers of his death at Saint Thomas. I immediately wrote to a physician and to the parish priest, urging them to secure me the privilege of an autopsy and offering to pay a fair sum for the stomach, which I agreed to place in the Army Medical Museum in Washington, but without avail. Subsequently, through the kindness of the Honorable Mr. Justice Baby, I obtained the following details of Saint Martin's later life, and the picture here given, which was taken the year before his death so as to show the wound which I hear show you. Judge Baby writes to his friend, Professor D. C. MacCallum of Montreal, as follows: "I have much pleasure today in placing in your hands such information about Saint Martin as Reverend Mr. Chicoine, Curé of Saint Thomas, has just handed over to me. Alexis Bidigan, *dit* Saint Martin, died at Saint Thomas de Joliette on the 24th of June, 1880, and was buried in the cemetery of the parish on the 28th of the same month. The last sacraments of the Catholic church were ministered to him by the Reverend Curé Chicoine, who also attended at his burial service. The body was then in such an advanced stage of decomposition that it could not be admitted into the church, but had to be left outside during the funeral service. The family resisted all requests—most pressing as they were—on the part of the members of the medical profession for an autopsy, and also kept the body at home much longer than usual and during a hot spell of weather, so as to allow decomposition to set in and baffle, as they thought, the doctors of the surrounding country and others.

They had also the grave dug eight feet below the surface of the ground in order to prevent any attempt at a resurrection. When he died Saint Martin was eighty-three years of age, and left a widow, whose maiden name was Marie Jolly.

II.—THE BOOK.

In the four periods in which Alexis had been under the care and study of BEAUMONT a large series of observations had been recorded, amounting in all to two hundred thirty-eight. A preliminary account of the case and of the first group of observations appeared in the *Philadelphia Medical Recorder* in January, 1825. During the stay in Washington in 1832 the great importance of the observations had become impressed on the Surgeon-General, Doctor Lovell, who seems to have acted in a most generous and kindly spirit. BEAUMONT tried to induce him to undertake the arrangement of the observations, but Lowell insisted that he should do the work himself. In the spring of 1833 Alexis was taken to New York and there shown to the prominent members of the profession, and careful drawings and colored sketches were made of the wound by Mr. King. A prospectus of the work was issued and was distributed by the Surgeon-General, who speaks in a letter of sending them to Doctor Franklin Bache and to Doctor Stewart of Philadelphia, and in a letter from Doctor Bache to DOCTOR BEAUMONT acknowleding the receipt of a bottle of gastric juice, Bache states that he has placed the prospectus in Mr. Judah Dobson's store and has asked for subscribers. BEAUMONT did not find New York a very congenial place. He complained of the difficulty of doing the work owing to the vexatious social intercourse. He applied for permission to go to Plattsburg, in order to complete the book. After having made inquiries in New York and Philadelphia about terms of publication he decided, as the work had to be issued at his own expense, that it could be as well and much more cheaply printed at Plattsburg, where he would also have the advice and help of his cousin, Doctor Samuel Beaumont. In a letter to the Surgeon-General, dated June 10, 1833, he acknowledges the permission to go to Plattsburg, and says: "I shall make my arrangements to leave here for Pl. in about a week to *rush* the execution of the book as fast as possible. I am now having the drawings taken by Mr. King engraved here."

The summer was occupied in making a fresh series of experiments and getting the work in type. On December 8 he writes the Surgeon-General that the book will be ready for distribution in a few days and that one thousand copies will be printed.

The work is an octavo volume of 280 pages, entitled "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," by WILLIAM BEAUMONT, M. D., Surgeon in the United States Army. Plattsburg. Printed by F. P. Allen, 1833. While it is well and carefully printed, the paper and type are not of the best, and one cannot but regret that BEAUMONT did not take the advice of Doctor Franklin Bache, who urged him strongly not to have the work printed at Plattsburg, but in Philadelphia, where it would be done in very much better style. The dedication of the work to Joseph Lovell, M. D., Surgeon-General of the United States Army, acknowledges in somewhat laudatory terms the debt which BEAUMONT felt he owed to his chief, who very gratefully acknowledged the compliment and the kindly feeling, but characterizes the dedication as "somewhat apocryphal."

The work is divided into two main portions: first, the preliminary observations on the general physiology of digestion in seven sections: Section I, Of Aliment; Section II, Of Hunger and Thirst; Section III, Of Satisfaction and Satiety; Section IV, Of Mastication, Insalivation and Deglutition; Section V, Of Digestion by the Gastric Juice; Section VI, Of the Appearance of the Villous Coat, and of the Motions of the Stomach; Section VII, Of Chylification and Uses of the Bile and Pancreatic Juice. The greater part of the book is occupied by the larger section of the detailed account of the four series of experiments and observations. The work concludes with a series of fifty-one inferences from the foregoing experiments and observations.

The subsequent history of the book itself is of interest, and may be dealt with here. In 1834 copies of the Plattsburg edition, printed by F. P. Allen, were issued by Lilly, Wait & Company, of Boston.

In the BEAUMONT correspondence there are many letters from a Doctor McCall, in Utica, New York, who was an intimate friend of a Mr. William Combe, a brother of the well-known physiologist and popular writer, Doctor Andrew Combe of Edinburgh. Doubtless it was through this connection that in 1838 Doctor Combe issued an edition in Scotland, with numerous notes and comments. (Appendix C.)

The second edition was issued from Burlington, Vermont, in 1847, with the same title page, but after Second Edition there are the words, corrected by Samuel Beaumont, M. D., who was DOCTOR WILLIAM BEAUMONT'S cousin. In the preface to this edition the statement is made that the first edition, though a large one of three thousand copies, had been exhausted. This does not agree with the statement made in a letter of December 3, 1833, to the Surgeon-General, stating that the edition was to be one thousand copies. Of course more may have been printed before the type was distributed.

A German edition was issued in 1834 with the following title: "Neue Versuche und Beobachtungen ueber den Magensaft und die Physiologie der Verdauung, auf eine hochst merkwurdige Weise wahrend einer Reihe von 7 Jahren, an einen und demselben Subject angestellt." BEAUMONT'S earlier paper, already referred to, was abstracted in the Magazin der auslandischen Litteratur des gesammten eilkunde, amburg, 1826, and also in the Archives generales de Medicine, Paris, 1828. I cannot find that there was a French edition of the work.

The "Experiments and Observations" attracted universal attention, both at home and abroad. The journals of the period contained very full accounts of the work, and within a few years the valuable additions to our knowledge filtered into the text-books of physiology, which today in certain descriptions of the gastric juice and of the phenomena of digestion even the very language of the work is copied.

III.—THE VALUE OF BEAUMONT'S OBSERVATIONS.

There had been other instances of artificial gastric fistula in man which had been made the subject of experimental study, but the case of Saint Martin stands out from all others on account of the ability and care with which the experiments were conducted. As Doctor Combe says, the value of these experiments consists partly in the admirable opportunities for observation which BEAUMONT enjoyed, and partly in the candid and truth-seeking spirit in which all his inquiries seem to have been conducted. "It would be difficult to point out any observer who excells him in devotion to truth and freedom from the trammels of theory or prejudice. He tells plainly what he saw and leaves every one to draw his own inferences, or where he lays down conclusions he does so with a degree of modesty and fairness of which few perhaps in his circumstances would have been capable."

To appreciate the value of BEAUMONT'S studies it is necessary to refer for a few moments to our knowledge of the physiology of digestion in the year 1832, the date of the publication. Take, for example, "The Work on Human Physiology" (published in the very year of the appearance of BEAUMONT'S book), by Dunglison, a man of wide learning and thoroughly informed in the literature of the subject. The five or six old theories of stomach digestion, concoction, putrefaction, trituration, fermentation and maceration, are all discussed and William Hunter's pithy remark is quoted, "some physiologists will have it, that the stomach is a mill, others, that it is a fermenting vat, others, again, that it is a stew-pan; but, in my view of the matter, it is neither a mill, a fermenting vat nor a stew-pan; but a stomach, gentlemen, a stomach."

The theory of chemical solution is accepted. This had been placed on a sound basis by the experiments of Reamur, Spallanzani and Stevens, while the studies of Tiedemann and Gmelin and of Prout had done much to solve the problems of the chemistry of the juice. But very much uncertainty existed as to the phenomena occurring during digestion in the stomach, the precise mode of action of the juice, the nature of the juice itself and its action outside the body. On all these points the observations of BEAUMONT brought clearness and light where there had been previously the greatest obscurity.

The following may be regarded as the most important of the results of BEAUMONT'S observations:

First, the accuracy and completeness of description of the gastric juice itself. You will all recognize the following quotation, which has entered into the text-books and passes current today: "Pure gastric juice, when taken directly out of the stomach of a healthy adult, unmixed with any other fluid, save a portion of the mucus of the stomach with which it is most commonly and perhaps always combined, is a clear, transparent fluid; inodorous; a little saltish, and very perceptibly acid. Its taste, when applied to the tongue, is similar to this mucilaginous water slightly acidulated with muriatic acid. It is readily diffusible in water, wine or spirits; slightly effervesces with alkalies; and is an effectual solvent of the *materia alimentaria.* It possesses the property of coagulating albumen, in an eminent degree; is powerfully antiseptic, checking the putrefaction of meat; and effectually restorative of healthy action, when applied to old, fetid sores and foul, ulcerating surfaces."

Secondly, the confirmation of the observation of Prout that the important acid of the gastric juice was the muriatic or hydrochloric. An analysis of Saint Martin's gastric juice was made by Dunglison, at that time a professor in the University of Virginia, and by Benjamin Silliman, of Yale, both of whom determined the presence of free hydrochloric acid. A specimen was sent to the distinguished Swedish chemist, Berzelius, whose report did not arrive in time to be included in the work. In a letter dated July 19, 1834, he writes to Professor Silliman that he had not been able to make a satisfactory analysis of the juice. The letter is published in *Silliman's Journal*, Volume XXVII, July, 1835.

Thirdly, the recognition of the fact that the essential elements of the gastric juice and the mucus were separate secretions.

Fourthly, the establishment by direct observation of the profound influence on the secretion of the gastric juice and on digestion of mental disturbances.

Fiftly, a more accurate and fuller comparative study of the digestion in the stomach with digestion outside the body, confirming in a most elaborate series of experiments the older observations of Spallanzani and Stevens.

Sixthly, the refutation of many erroneous opinions relating to gastric digestion and the establishment of a number of minor points of great importance, such as, for instance, the rapid disappearance of water from the stomach through the pylorus, a point brought out by recent experiments, but insisted on and amply proven by BEAUMONT.

Seventhly, the first comprehensive and thorough study of the motions of the stomach, on which observations, indeed, are based the most of our present knowledge.

And lastly, a study of the digestibility of different articles of diet in the stomach, which remains today one of the most important contributions ever made to practical dietetics.

The greater rapidity with which solid food is digested, the injurious effects on the stomach of tea and coffee, when taken in excess, the pernicious influence of alcoholic drinks on the digestion are constantly referred to. An all-important practical point insisted on by BEAUMONT needs emphatic reiteration to this generation: "The system requires much less than is generally supplied to it. The stomach disposes of a definite quantity. If more be taken than the actual wants of the economy require, the residue remains in the stomach and becomes a source of irritation and produces a consequent aberration of function, or passes into the lower bowel in an undigested state, and extends to them its deleterious influence. Dyspepsia is oftener the effect of overeating and overdrinking than of any other cause."

In reality BEAUMONT anticipated some of the most recent studies in the physiology of digestion. Doubtless many of you have heard of Professor Pawlow's, of Saint Petersburg, new work on the subject. It has been translated into German, and I see that an English edition is advertised. He has studied the gastric juice in an isolated pouch, ingeniously made at the fundus of the stomach of the dog, from which the juice could be obtained in a pure state. One of his results is the very first announced by BEAUMONT and confirmed by scores of observations on Saint Martin, namely, that, as he says, "the gastric juice never appears to be accumulated in the cavity of the stomach while fasting." Pawlow has shown very clearly that there is a relation between the amount of food taken and the quantity of gastric juice secreted. BEAUMONT came to the same conclusion: "when aliment is received the juice is given in exact proportion to its requirements for solution." A third point on which Pawlow lays stress is the curve of secretion of the gastric juice, the manner in which it is poured out during digestion. The greatest secretion, he has shown, takes place in the earlier hours. On this point hear BEAUMONT: "It [the gastric juice] then begins to exude from the proper vessels and increases in proportion to the quantity of aliment naturally required and received." And again: "When a due and moderate supply of food has been received it is probable that the whole quantity of gastric juice for its complete solution is secreted and mixed with it in a short time." A fourth point, worked out beautifully by Pawlow, is the adaptation of the juice to the nature of the food, on which I do not see any reference by BEAUMONT, but there are no experiments more full than those in which he deals with the influence of exercise, weather and the emotions on the quantity of the juice secreted.

IV.—MAN AND DOCTOR.

Sketches of DOCTOR BEAUMONT'S life have appeared from time to time. There is a worthy memoir by Doctor T. Reyburn in the *Saint Louis Medical and Surgical Journal*, 1854, and Doctor A. J. Steele, at the first annual commencement of the Beaumont Medical College, 1887, told well and graphically the story of his life. A few years ago Doctor Frank J. Lutz, of this city, sketched his life [see The Physician and Surgeon, December, 1900] for the memorial meeting of the Michigan State Medical Society on the occasion of the dedication of a BEAUMONT monument.

Among the papers kindly sent to me by his daughter, Mrs. Keim, are many autobiographical materials, particularly relating to his early studies and to his work as a surgeon in the War of 1812. There is an excellent paper in the handwriting, it is said, of his son, giving a summary of the earlier period of his life. So far as I know this has not been published and I give it in full:

"DOCTOR WILLIAM BEAUMONT was born in the town of Lebanon, Connecticut, on the 21st day of November, A. D. 1785. His father was a thriving farmer and an active politician of the proud old Jeffersonian school, whose highest boast was his firm support and strict adherence to the honest principles he advocated. William was his third son, who, in the winter of 1806–7, in the twenty-second year of his age, prompted by a spirit of independence and adventure, left the paternal roof to seek a fortune and a name. His outfit consisted of a horse and cutter, a barrel of cider, and one hundred dollars of hard-earned money. With this he started, laying his course northwardly, without any particular destination, Honor his rule of action, Truth, his only landmark, and Trust placed implicitly in Heaven. Traversing the Western part of Massachusetts and Vermont in the spring of 1807 he arrived at the little village of Champlain, New York, on the Canada frontier — an utter stranger, friendless and alone. But honesty of purpose and true energy invariably work good results. He soon gained the people's confidence and was entrusted with their village school, which he conducted about three years, devoting his leisure hours to the study of medical works from the library of Doctor Seth Pomeroy, his first patron. He then went over to Saint Albans, Vermont, where he entered the office of Doctor Benjamin Chandler and commenced a regular course of medical reading, which he followed for two years, gaining the utmost confidence and esteem of this kind preceptor and friends. About this time the War of 1812 commenced, and he applied for an appointment in the United States Army, successfully. He was appointed assistant surgeon to the Sixth Infantry, and joined his regiment at Plattsburg, New York, on the 13th of September, 1812. On the 19th of March, 1813, he marched from Plattsburg with the First Brigade, for Sackett's Harbor, where they arrived on the 27th instant. Here he remained in camp till the 22d of April, when he embarked with the troops on Lake Ontario.

His journal tells in an interesting manner the story of a short engagement in which the enemy lost nearly a third of their men and were soon compelled to quit the field, leaving their dead and wounded strewn in every direction. Then they blew up their magazine, and BEAUMONT says: "Over three hundred were wounded and sixty killed by stones of all dimensions falling like a shower of hail, in the midst of our ranks. Distressing scenes ensued in the hospital. Nothing is heard but the agonizing groans and supplications of the wounded and the dying. The surgeons wade in blood cutting off arms and legs and trepaning heads, while the poor sufferers cry, 'O, my God! Doctor, relieve me from this misery! I cannot live!' 'Twas enough to touch the veriest heart of steel and move the most relentless savage. Imagine the shocking scene, where fellow-beings lie mashed and mangled — legs and arms broken and sundered — heads and bodies bruised and mutilated to disfigurement! My deepest sympathies were roused — I cut and slashed for thirty-six hours without food or sleep."

In 1816 he settled in Plattsburg and remained there four years in succesful practice. In the meantime his army friends had persuaded him to join the service again, and, having applied, he was reappointed, in 1820, and ordered to Fort Mackinac as post surgeon. At the end of the first year he obtained leave of absence, returned to Plattsburg and married one of the most amiable and interesting ladies of that place. (She still survives her honored husband, and in her green old age is loved devotedly by all who know her.) He returned to Mackinac the same year, and in 1822 came in possession of Alexis Saint Martin, the subject of his "Experiments on the Gastric Juice." By the accidental discharge of his gun, while hunting, Saint Martin had dangerously wounded himself in the abdomen and came under the treatment of DOCTOR BEAUMONT, who healed the wound (in itself a triumph of skill almost unequaled) and in 1825 commenced a series of experiments, the results of which have a world-wide publication. These experiments were continued, with various interruptions, for eight years, during which time he was ordered from post to post—now at Niagara, New York, anon at Green Bay, Michigan, and finally at Fort Crawford, on the Mississippi. In 1834 he was ordered to Saint Louis, where he remained in service till 1839, when he resigned. He then commenced service with the citizens of Saint Louis, and from that time till the period of his last illness, enjoyed an extensive and distinguished practice, interrupted only by the base attacks of a few disgraceful and malicious knaves (self-deemed members of the medical profession) who sought to destroy a reputation which they could not share. They gained nothing except some little unenviable notoriety and they have sulked away like famished wolves, to die in their hiding places.

The dates of BEAUMONT'S commissions in the army are as follows: Surgeon's Mate, Sixth Regiment of Infantry, December 2, 1812; Cavalry, March 27, 1819; Post Surgeon, December 4. 1819; Surgeon First Regiment and Surgeon, November 6, 1826.

From the biographical sketches of Reyburn, Steele and Lutz, and from the personal reminiscences of his friends, Doctors. J. B. Johnson, S. Pollak and William McPheeters, who fortunately remains with you, full of years and honors, we gather a clearly-defined picture of the latter years of his life. It is that of a faithful, honest, hard-working practitioner, doing his duty to his patients, and working with zeal and ability for the best interests of the profession. The strong common sense which he exhibited in his experimental work made him a good physician and a trusty adviser in cases of surgery. Among his letters there are some interesting pictures of his life, particularly in his letters to his cousin, Doctor Samuel Beaumont.

WILLIAM BEAUMONT.

He continued at work until March, 1853, when he had an accident — a fall while descending some steps. A few weeks later a carbuncle appeared on the neck, and proved fatal April 25. One who knew him well wrote the following estimate (quoted by Doctor F. J. Lutz in his sketch of BEAUMONT):

"He was gifted with strong natural powers, which working upon an extensive experience in life, resulted in a species of natural sagacity, which, as I suppose, was something peculiar in him, and not to be attained by any course of study. His temperament was ardent, but never got the better of his instructed and disciplined judgment, and whenever or however employed, he ever adopted the most judicious means for attaining ends that were always honorable. In the sick-room, he was a model of patience and kindness, his intuitive perceptions, guiding a pure benevolence, never failed to inspire confidence, and thus he belonged to that class of physicians whose very presence affords Nature a sensible relief."

You do well, citizens of Saint Louis and members of our profession, to cherish the memory of William Beaumont. Alive you honored and rewarded him, and there is no reproach against you of neglected merit and talents unrecognized. The profession of the northern part of the State of Michigan has honored itself in erecting a monument [see The Physician and Surgeon, December, 1901, pages 566 and 567; February, 1902 (for inscription), page 94] to his memory near the scene of his disinterested labors in the cause of humanity and science. His name is linked with one of your educational institutions, and joined with that of a distinguished laborer in another field of practice. But he has a far higher honor than any you can give him here — the honor that can only come when the man and the opportunity meet — and match. Beaumont is the pioneer physiologist of this country, the first to make an important and enduring contribution to this science. His work remains a model of patient, persevering investigation, experiment and research, and the highest praise we can give him is to say that he lived up to and fulfilled the ideals with which he set out and which he expressed when he said: "Truth, like beauty, when unadorned, is adorned the most, and, in prosecuting these experiments and enquiries, I believe I have been guided by its light."

APPENDIX A.

The Beaumont papers in the possession of his daughter, Mrs. Keim of Saint Louis, consist of (1) interesting certificates from his preceptors, Doctor Pomeroy and Doctor Chandler, the license from the Third Medical Society of Vermont, the commissions in the United States Army, several cetirficates of honorary membership in societies, and the parchment of the M. D. degree conferred upon him, *honoris causa*, by the Columbian University of Washington, 1833; (2) a journal containing his experiences in the War of 1812, from which I give an extract, a journal of his trip to Fort Mackinac, a journal containing the reports of many cases, among them that of Saint Martin (in addition there is a protocol of the case in loose folio sheets), a journal of the experiments, and a commonplace book of receipts and jottings; (3) an extensive correspondence relating to Saint Martin and the book, and many rough drafts of sections of the book; (4) a large mass of personal correspondence, much of it of interest as relating to conditions of practice in Saint Louis.

The picture reproduced here in his army uniform is from a miniature: the picture which has been previously reproduced is of an older man from a daguerreotype. It is satisfactory to know that the ultimate destination of this most valuable collection of papers is the Surgeon-General's Library of the United States Army, of which DOCTOR BEAUMONT was so distinguished an ornament.

APPENDIX B.

On October 20, 1853, he writes to his cousin, Doctor Samuel Beaumont, on the subject of "that old, fistulous Alexis," as he calls him. "Alexis' answer to yours is the very facsimile or stereotype of all his Jesuitical letters to me for the last fifteen years. His object seems only to be to get a heavy bonus and undue advance from me and then disappoint and deceive me, or to palm and impose himself and whole family upon me to support for life.

"I have evaded his designs so far; but I verily fear that the strong and increasing impulse of conscious conviction of the great benefits and important usefulness of further and more accurate physiological investigation of the subject will compel me to still further efforts and sacrifices to obtain him. Physiological authors and most able writers on dietetics and gastric functions generally demand it of me in trumpet tones.

"I must have him at all hazards, and obtain the necessary assistance to my individual and private efforts or transfer him to some competent scientific institution for thorough investigation and report—I must retrieve my past ignorance, imbecility and professional remissness of a quarter of a century, or more, by double diligence, intense study and untiring application of soul and body to the subject before I die—

Should posthumous Time retain my name,
Let historic truths declare my fame.

"Simultaneous with this I write to Mr. Morrison and Alexis my last and final letters—perhaps, proposing to *him*, as bribe to his cupidity, to give him $500 to come to me *without* his family, for one year—three hundred of them for his salary, and $200 for the support and contentment of his family to remain in Canada in the meantime—with the privilege of bringing them on here another year, upon my former proposition of $300 a year, at his own expense and responsibility and support them himself after they get here out of his $300 salary—I think he will take the bait and come on this fall, and when I get him alone again into my keeping and engagement, I will take good care to control him as I please."

APPENDIX C.

Letter from Doctor Andrew Combe, May 1, 1838:

"My Dear Sir—May I beg your acceptance of the accompanying volumes as a small expression of my respect for your character and scientific labors. I need not detain you by repeating in this note the high estimation in which I hold you. The volumes herewith sent will, I trust, convince you of the fact, and that it will not be my fault if you do not receive the credit justly due to your valuable and disinterested services. I remain, My Dear Sir, Very respectfully yours,

"ANDREW COMBE."

APPENDIX D.

Letter from Doctor Samuel Beaumont, March 16, 1846:

"Your letter of the first of February arrived here in the course of mail, and I have attended to the business which you authorized me to do. I am afraid, however, that you will be disappointed, and perhaps dissatisfied with the arrangement. Mr. Goodrich came here some five or six days after I received your letter, and made his proposal, which was to give you every tenth copy for the privilege of publishing an edition. The number he proposed to publish was fifteen hundred, which would give you one hundred fifty copies. I did not like to close the bargain on this condition, and he was not disposed to give any more. This was in the evening. I told him to give me time till the next morning, and I would make up my mind. In the morning, after consultation, I concluded to offer him the copyright for the unexpired time (only one year) for two hundred copies. After some demurring we closed the bargain. I then thought and I still think it was not enough; but it was all I could get. In making up my mind the following considerations presented themselves: First, that the copyright would expire in one year, and he would then have the right to print it without consulting the author; second, that it would be somewhat mortifying to the author not to have his work republished, even if no great pecuniary benefit was to be obtained by such a republication; and it appeared to me to be quite certain that a new edition would not be soon printed, if I let this opportunity slip; third, I have been long anxious, as I presume you have been, to see the work gotten up in a better dress than it originally had, and in a way which will give it a general credit and more notoriety among all classes of the reading public than it has heretofore possessed—in fact, make it a standard work; fourth, it has given us a chance to give it a thorough correction, a thing which was very desirable. The work, you recollect, was got up in a great hurry, and a great many errors escaped our notice. You may also recollect that the Philadelphia reviewer spoke of the inaccuracies in the work. And he had reason enough for it. In looking over the work critically with a view of correction, I have been perfectly astonished at the errors that occur on almost every page. And although we understood perfectly what we meant to say, the reader would find it somewhat difficult to decipher our meaning. In the first one hundred and forty pages I made nearly three hundred corrections. These are practically merely verbal alterations or change of phrases or sentences so as to make them more accurate or perspicuous. I have in no case so changed the text as to give it a different meaning. I flatter myself that it will now be more worthy the public patronage; and if for no other, this chance for correction I consider alone almost a sufficient remuneration for the brief limits of the copyright. I have also written a preface for the second edition, making quotations from American and European authorities in praise of the merits of the work. From delicacy I have written this as from the publisher. I think it is pretty well done. The work will probably be published in the course of about a month, and those designed for you will be delivered to me, when I shall send them to you. He guarantees not to sell in the State of Missouri, or the states south and west of that state. But that, of course, is all gammon. The book will be thrown into market, and he cannot control the direction in which it will go."

CORRESPONDENCE.

THE WIDAL TEST.

EDITORS OF The Physician and Surgeon: The editors of a medical journal cannot be held responsible for the statements of contributors, even though they may not always be absoultely correct. As The Physician and Surgeon is a journal in which subjects of general medical interest may be discussed, and errors therein, if any, corrected, permit me to call your attention to a mistake in an article entitled "The Widal Test and the Treatment of Typhoid Fever," which appeared in your current October number. In this paper its author makes the following statement:

"One part blood or serum is added to ten parts of a twenty-four hour old bouillon growth of typhoid bacilli and examined at once under the microscope. If movements of bacilli are unaffected the test is negative," et cetera.

It is possible that the construction of this sentence is due to a typographical error. However, only those who are entirely unacquainted with the test could be misled. The most important point in the application of the Widal test is the *dilution*, not the amount of culture added. The latter, however, also has its important bearing in the case. The blood taken from the patient must be diluted at least as high as one part of blood or serum to thirty parts, preferably forty or fifty parts of distilled water. Without such dilutions and without taking into consideration definite time limits (see the January, 1900 number) the test cannot be said to be positive even though all the bacilli are motionless and gathered together in clumps. Basing conclusions on low dilutions is unsafe, for it has been repeatedly shown that the blood of robust individuals may cause clumping of the typhoid bacillus in dilutions as low as one to five or one to ten. With reference to the culture it might be said that ten loopfulls or "ten parts of a twenty-four-hour old bouillon growth of typhoid bacilli" would be too much germ to add. One loopfull is sufficient. There is danger of pseudoclumping when too much germ is added. There is a difference of opinion as to which is the best kind of culture to employ and it will not be necessary to more than mention this point.

DAVID MURRAY COWIE.

EDITORIAL COMMENT.

BEAUMONT'S PLACE IN HISTORY.

OUR readers are again fortunate in having paraded before them the principal scenes and facts in the life and work of the illustrious WILLIAM BEAUMONT. The papers and illustrations which were published at some pains in The Physician and Surgeon, for December, 1900, received hearty greeting, and rightly so. Since the issuing of BEAUMONT'S book the interesting story has been often retold, but not until the publication of the symposium of which this forms a part has so much detail been so attractively displayed. Not merely the essential facts, such as every physiology has quoted for three score of years, but the background as well stands in full view of the interested spectator. The numerous illustrations scattered through this history transport us back to the wilds of old Mackinac and to the other scenes of BEAUMONT'S unremitting toil.

Any one who takes the slight pains to compare the theoretical views concerning digestion which were held before the second thirty years of the last century, with the fund of exact knowledge which BEAUMONT discovered and set forth, cannot fail to be impressed with the high character and worth of this man. It was his rare good fortune to have presented to him the great opportunity, but it was his native talents and characteristic persistence even under difficulties that made the opportunity so fruitful. What BEAUMONT has told us forms the basis of our real knowledge concerning digestion and the role of the stomach in this process. He put all mankind after him under everlasting obligation.

As to BEAUMONT'S place in history there can be no question. Among his fellows he was a mere army surgeon, but his real field of labor was far and away above that. He performed his daily duties manfully; he worked also for all time and the results of his toil benefit us today. As medical progress and the world's progress are traced by such mile posts as HARVEY, SIMS, McDOWELL and LISTER, so have they been marked by the name and labors of BEAUMONT. Let us not withhold his meed of praise.

ANNOTATIONS.

IS WHISKEY TO BE GENERALLY RECOMMENDED AS A FIRST AID REMEDY TO THE INJURED?

THE sentiment created and fostered by temperance organizations and prohibition clubs has done much to restrict the intemperate use of alcoholic liquors, and yet as a first aid remedy to the injured, whiskey is usually the first thing to be thought of and used by the laity. It sometimes happens too that in their anxiety to do something the matter is quite overdone and undoubtedly damage ensues. In head injuries, for instance the effect of the whiskey may be such as to render doubtful the exact character of the hurt. In the condition of shock also the effect upon the heart may be the reverse of what is desired. Symptoms like vomiting directly referable to the whiskey may present due wholly to the strength or amount of the dosage. Since external remedies as heat or cold according to indications and perhaps less harmful remedies as coffee are as easily obtained and do more good and less harm than alcoholic drinks in the hands of laymen the impression of the harm of the latter should be spread. Physicians seldom err in the employment of proper means or drugs in such cases. Let them use opiates. strychnia or alcohol as seems indicated. If the laity persist in drugging let it be restricted to their own use of patent medicines.

OUR NEXT ISSUE.

THE "Original Articles" in the next number of The Physician and Surgeon will treat upon the following subjects: "The Study of Older Medical Writings," by James B. Herrick, M, D., Chicago; "Excision of the Knee for Chronic Rheumatism," by Theodore A. McGraw, M. D., Detroit; "The Surgical Treatment of Procidentia Uteri," by Reuben Peterson, M. D., Ann Arbor; "Surgery in Hydrocephalus," by Daniel La Ferté, M. D., Detroit. The various departments of "Original Abstracts," which, owing to the greath length of the Beaumont papers have been crowded out of this issue, will be represented with the other regular departments. The journal will appear in a new dress.

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